DOCUMENT RESUME

ED 451 378 CE 081 526

AUTHOR	Binkley, Marilyn; Hudson, Lisa; Knepper, Paula; Kolstad, Andy; Stowe, Peter; Wirt, John
TITLE	Lifelong Learning NCES Task Force: Final Report, Volume I. Working Paper Series.
INSTITUTION	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-WP-2000-16a
PUB DATE	2000-07-00
NOTE	62p.; For Volume II, see CE 081 527.
AVAILABLE FROM	ED Pubs, P.O. Box 1398, Jessup, MD 20794-1398. Tel: 877-433-7827 (Toll Free). For full text: http://www.nces.ed.gov/pubs2000/20016a.pdf.
PUB TYPE	Reports - Evaluative (142)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Academic Achievement; Adult Education; *Adult Learning; Agency Role; Change Strategies; Cost Effectiveness; *Data Collection; Definitions; *Delivery Systems; Education Work Relationship; Educational Attainment; Educational Benefits; Educational Finance; *Educational Needs; Educational Policy; Educational Research; Educational Technology; Employment Qualifications; Enrollment Trends; Government School Relationship; Informal Education; Information Needs; Job Skills; Labor Market; Labor Needs; *Lifelong Learning; Needs Assessment; Organizational Development; Outcomes of Education; Policy Formation; Postsecondary Education; Program Development; Program Effectiveness; Program Evaluation; Research Design; Research Methodology; Student Educational Objectives
IDENTIFIERS	*National Center for Education Statistics; Task Force Approach

ABSTRACT

In September 1998, the National Center for Education Statistics (NCES) established a 1-year task force to review the NCES's role concerning lifelong learning. The eight-member task force established a working definition of lifelong learning ("a process or system through which individuals are able and willing to learn at all stages of life, from preschool through old age") and conducted the following activities: (1) summarized and prioritized policy issues concerning lifelong learning; (2) synthesized exiting data to address monitoring and policy needs; (3) identified and prioritized gaps in existing data; and (4) developed recommendations on data collection strategies. The recommendations focused on the following lifelong learning issue areas: the adult population; learning attitudes and skills of adults; labor market demand for adult learning; participation levels and patterns; goals, incentives, and disincentives; investments in adult learning; adult learning providers; instructional delivery and new technologies; informal learning; services and accommodations for adults; outcomes and effectiveness; and the government's role in adult learning. The task force concluded that adult learning is an important area of education that should have a coherent data collection and reporting system within NCES and that NCES should take the following steps to develop such a system: (1) develop a compendium report summarizing existing information on

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lifelong learning; and (2) modify existing survey instruments that collect relevant information. (MN)

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Working Paper Series

Lifelong Learning NCES Task Force: Final Report, Volume I

Working Paper No. 2000-16a July 2000

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Suggested Citation

U.S. Department of Education. National Center for Education Statistics. *Lifelong Learning NCES Task Force: Final Report, Volume I*, Working Paper No. 2000-16a, by the NCES Lifelong Learning Task Force. Washington, DC: 2000.

July 2000

Foreword

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Lifelong Learning NCES Task Force:

Final Report, Volume I

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July 2000

Acknowledgment

The task force wishes to thank Marty Orland for his guidance and support throughout the year. We would also like to acknowledge the support received by other NCES and ESSI staff. At ESSI, Sean Creighton was designated to provide task force support, but in reality was one of our hardest working task force members. Shannon Blaney organized the TRP meeting, and Linda Shafer and Shannon assisted Sean in writing the literature review. The following people assisted in typing, editing, formatting, and designing this report: Diana Thomas of NCES, and Allison Arnold, Mariel Escudero, Jessica Harris, Anne Kotchek, Qiwu Liu, Jennie Romolo, and Jennifer Thompson of ESSI.

The Lifelong Learning Task Force

Marilyn Binkley, Lisa Hudson, Paula Knepper, Andy Kolstad, Peter Stowe, and John Wirt

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List of Data Collection Acronyms

Acronym	Name of Data Collection	Sponsoring Agency
ACS	American Community Survey	Census Bureau
B&B	Baccalaureate and Beyond Longitudinal Study	NCES
BPS	Beginning Postsecondary Student Longitudinal Study	NCES
CCD	Common Core of Data	NCES
CPS	Current Population Survey	Census Bureau
ECLS	Early Childhood Longitudinal Study	NCES
FRSS	Fast Response Survey System	NCES
IALS	International Adult Literacy Survey	NCES and Statistics Canada
ILSS	International Life Skills Survey	NCES and Statistics Canada
IPEDS	Integrated Postsecondary Education Data System	NCES
NAAL	National Assessment of Adult Literacy	NCES
NAEP	National Assessment of Educational Progress	NCES
NALS	National Adult Literacy Survey	NCES
NELS	National Education Longitudinal Survey	NCES
NES	National Employer Survey	OERI
NHES	National Household Education Survey	NCES
NHES/AE	Adult Education Component of the NHES	NCES
NHES/EC	Early Childhood Component of the NHES	NCES
NLS-Y	National Longitudinal Survey of Youth (1979)	BLS in DoL
NPSAS	National Postsecondary Student Aid Study	NCES
NSOPF	National Study of Postsecondary Faculty	NCES
O*NET	Occupational Information Network	ETA in DoL
PEQIS	Postsecondary Education Quick Information System	NCES
PISA	Program for Indicators of Student Achievement	NCES with OECD
SEPT	Survey of Employer-Provided Training	BLS in DoL
SIPP	Survey of Income and Program Participation	Census Bureau
TIMSS	Third International Mathematics and Science Study	IEA

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SECTION 1: BACKGROUND AND OVERVIEW

Background

The United States can no longer rely on the completion of compulsory schooling to create a competitive labor force and an informed citizenry. The competition created by a global economy, the proliferation of computer technologies, and the growth of decentralized work organizations all increase the need for a workforce with higher levels of initial skills and a greater ability for continuous learning. In addition, the growing availability and complexity of information and choices that adults face (e.g., in science and health care, financial services, and environmental concerns) make continuous learning increasingly important for effective functioning within society. Finally, population demographics—a growing cohort of older Americans, significantly more well educated than previous generations, and with ample disposable income—are creating new demands for adult learning opportunities.

The growing importance of lifelong learning is reflected in a number of recent research and policy efforts. Since the 1970s, there have been three separate national commissions examining this topic. The Administration has passed a series of policy initiatives designed to increase adults' participation in learning, including the Hope Scholarships, Lifelong Learning tax credits, and (newly proposed) the Learning Anytime Anywhere Partnership grants. In 1998, Vice President Gore sponsored a White House Summit on workforce skill development. The OECD has initiated efforts to develop international indicators of participation in education and training, and is considering future indicator work on lifelong learning.

In recognition of these shifting priorities, the Commissioner of NCES established, in September 1998, a one-year task force to review NCES' role concerning lifelong learning. The goal of the task force was to assist NCES management with long-term strategic planning—more specifically, to help the Center determine whether and how it should develop a data collection and reporting system on lifelong learning. This system would be designed to both *monitor* lifelong learning, and to provide data relevant to *policy issues* concerning lifelong learning. With this goal in mind, the task force included six NCES staff members, representing various NCES data collection efforts that contain information relevant to lifelong learning (see table 1.1).

Table 1.1—Lifelong Learning Task Force Members

Staff Member	Data Collection Responsibility
Marilyn Binkley	ILSS
Lisa Hudson	Data on Vocational Education (DOVE) system
Paula Knepper	NPSAS, BPS, and B&B
Andrew Kolstad	NALS and NAAL
Peter Stowe	NHES/AE
John Wirt	*Condition of Education*
Ex Officio NHES Representative Chris Chapman	NHES
ESSI Support Sean Creighton	NHES/AE, ACS

This report summarizes the work of the Lifelong Learning Task Force. This section provides an overview of the task force's activities, findings, and recommendations. Section 2 discusses in more detail the task force's findings concerning data needs, and section 3 lists our recommendations. The appendices provide further documentation of task force work.

Task Force Activities

To achieve its goal, the task force first developed a working definition of lifelong learning, then established a series of objectives.

Definition of Lifelong Learning. At its broadest and most theoretical level, lifelong learning refers to a process or system through which individuals are able and willing to learn at all stages of life, from preschool years through old age; this definition is reflected in the National Goals Panel objective to "build a nation of learners." While we endorse this underlying conceptual definition of lifelong learning, this definition does not apply well to the task force's charge. Given the extensive data collection that already exists within the Center on early childhood education, elementary and secondary education, and postsecondary education, we restricted our definition of lifelong learning to adult learning. Appendix A in Volume II provides further details on our adopted definition; as explained there, this definition may include some or all individuals who participate in postsecondary education, depending on the nature and/or timing of their participation.

We also distinguished between formal and informal learning, and between work-related and avocational learning. Our definitions follow closely those used in the literature and in existing surveys. Formal learning is planned, mediated by an instructor, and includes a structured curriculum; it also may have an evaluation process. Informal learning does not have a structured curriculum or evaluation process; it may or may not be mediated by an instructor. Learning that is engaged in primarily to acquire skills or knowledge for a job is defined as work-related, otherwise it is avocational. Formal and work-related education received the greatest attention from our task force, as they were found to be the areas of greatest policy concern and leverage.

With a working definition of lifelong learning in hand, the task force established four main objectives:

1. Summarize and prioritize policy issues concerning lifelong learning;
2. Synthesize existing data to address monitoring and policy needs;
3. Identify and prioritize gaps in existing data; and
4. Develop recommendations on data collection strategies.

The activities undertaken to meet these objectives are discussed below.

Issues Summary. To develop and prioritize the policy issues related to lifelong learning, the task force divided this area of learning into six broad issue areas,[1] each of which was assigned to one or more task force members. Each task force member reviewed the literature within his or her assigned area. Each of these reviews was supplemented by a commissioned paper from an outside expert, and by a general review of lifelong learning conducted by ESSI staff (included as appendixes B and C in Volume II). Table 1.2 lists these policy areas and the staff assigned to them.

The information from these various sources was combined into a background report that provides a comprehensive listing of issues relevant to monitor lifelong learning and to address policy concerns. The task force then convened a technical review panel (TRP) of outside and Agency experts on adult learning and postsecondary education. The TRP met for one day in February 1999 to review the background report and help prioritize the issues listed within it. Appendix D in Volume II includes the TRP background report, listing of TRP members, and summary of the TRP meeting.

Prioritizing Issues. After the TRP meeting, task force members divided the full list of issues included in the background report into high, medium, and low priority issues. Feedback from the TRP meeting contributed to this prioritization process, which was guided by the following criteria: each issue should (1) be measurable through national surveys, (2) be of relevance to NCES' mission, (3) be of relevance to policymakers, and (4) affect a relatively large number of individuals

Table 1.2—Original Lifelong Learning Issue Areas and Assignments

Social, Demographic, and Economic Trends Task Force Staff: Marilyn Binkley Outside Expert: David Bills, Department of Education, University of Iowa
Acquisition of Basic Skills Task Force Staff: Andrew Kolstad Outside Expert: Mark Kutner, American Institutes for Research
Service Delivery in Postsecondary Institutions Task Force Staff: Paula Knepper Outside Expert: David Powers, Nebraska Coordinating Commission for Postsecondary Education
The Education of Workers Task Force Staff: John Wirt and Peter Stowe Outside Expert: Bonnie Nelsen, Graduate School of Management, Cornell University
Education Technologies Task Force Staff: Sean Creighton, ESSI Outside Expert: Tom Edgerton, Sun Microsystems
Informal and Avocational Learning Task Force Staff: Lisa Hudson Outside Expert: Barbara Butler, National Science Foundation (retired)

or involve significant economic costs. In the process of prioritizing issues, the task force reorganized the issues into more focused topic areas, listed in table 1.3 and discussed further below. The complete list of prioritized issues, classified into the areas listed in table 1.3, is included in appendix E in Volume II. (High-priority issues are discussed further in section 2 of this report.)

Synthesis of Existing Data. The task force's next step was to determine whether each high-priority issue is fully addressed by existing national data sources. The data sources considered in this step are listed in appendix F in Volume II; they include data sets administered by NCES, as well as by OERI, the Department of Labor, and the Bureau of the Census within the Department of Commerce.

While the task force went through the process of identifying policy issues and the data available to address them, another type of issue arose. For some of the data that should be included in a lifelong learning data collection system, there are fundamental questions about how to define underlying concepts, or how to collect data in a feasible, valid, or reliable manner. We call these issues *conceptual and measurement issues*; a summary of these issues is listed in appendix G in Volume II.

Identification and Prioritization of Data Gaps. Having identified available data sources and their contents, the task force then held a series of meetings during which we identified gaps in the existing data, the gaps that are most critical to fill, and the most appropriate procedures for filling critical data gaps.

Development of Recommendations. Finally, the task force concluded that NCES should proceed with the development of a data collection and reporting system on lifelong learning. To meet this goal, two inadequacies in current data efforts need to be addressed. First, existing data on lifelong learning have been under-utilized. A more systematic and coordinated analysis of currently available data is necessary to develop a lifelong learning *reporting* system. Second, although existing data are fairly extensive, significant gaps in these data restrict their ability to fully describe adult learning. Filling these gaps is necessary in order to develop a comprehensive *data collection* system. We developed a series of recommendations on how an effective data collection and reporting system should be developed, both in

Table 1.3—Final 12 Lifelong Learning Issue Areas

The Adult Population	Adult Learning Providers
Learning Attitudes and Skills of Adults	Instructional Delivery and New Technologies
Labor Market Demand for Adult Learning	Informal Learning
Participation Levels and Patterns	Services and Accommodations for Adults
Goals, Incentives, and Disincentives	Outcomes and Effectiveness
Investments in Adult Learning	Government Role in Adult Learning

terms of the tasks to be pursued and the organizational structure to support this effort. We attempted to offer strategies that would proceed from smaller steps that meet more immediate needs to larger, more extensive steps that would realign the Center within a "lifelong learning" framework.

Summary of Findings and Recommendations

This section provides a brief overview of the task force's findings on the important policy areas within lifelong learning and the data gaps that exist within each area. It also provides a brief summary of the recommendations proposed for future NCES work in this area. A more detailed discussion of these issues is contained in the subsequent sections of this report.

The Adult Population. Unlike K–12 education, adult learning is not compulsory; this learning is often voluntary, or linked to work requirements, which differ among occupations. As a result, participation can vary among groups of adults, such as those with different levels of formal education or in different jobs. It is thus informative to monitor who participates in adult learning, for general descriptive purposes, to understand why some adults participate and others do not, and to determine whether there are inequities in the distribution of learning opportunities.

We noted that there is a great deal of information available in existing surveys with which to describe adults. However, some questions are asked differently from one survey to another, which can make findings inconsistent among surveys and difficult to interpret. Specifically, we need to consistently distinguish those with a regular high school diploma from those with a GED or other alternative diploma. We also need to collect consistent information on disability status and more information on adults' labor market status.

Learning Attitudes and Skills of Adults. Adults participate in learning because they want to and/or need to. Thus, it is difficult to fully understand participation patterns without understanding the skills available within the adult population, their attitudes toward continued learning, and (addressed in the next subsection), the skills used or needed in the labor market.

Although NCES currently conducts assessments of adult literacy, few data are available to reveal adults' perceptions of their learning needs or the opportunities they have to fill these needs. In addition, we are not able to link information on the skills sought through lifelong learning activities to the skills required by jobs, or adults' current skill levels; these measures of skill "supply" and "demand" need to be brought into alignment.

Labor Market Demand for Adult Learning. Much of the learning adults engage in is related to work; the labor market is an important source, if not the most important source, of the demand for lifelong learning. Thus, to help understand or predict the nature and extent of lifelong learning, it is necessary to understand the skill and learning needs that exist within the labor market.

Data on the skills used in the labor market are available in the Department of Labor's O*NET system, which lists over 1,000 occupations and their job requirements; these data could be linked to data on the composition of the labor market in order to track labor market skill demands. Data from O*NET or other sources are also needed to

monitor changes in the extent to which occupations require continual or periodic learning; this factor is probably as important as changes in skills in general in determining the need for adult learning. We need to learn more about the feasibility of O*NET and other occupational data for these purposes.

Participation Levels and Patterns. Obviously, one cannot monitor lifelong learning without monitoring the nature and extent of participation in learning activities. Participation levels and patterns provide the most fundamental information to describe the enterprise of lifelong learning.

Data on participation are widely available from a number of sources, most notably the NHES/AE. But there are two limitations in currently available data. First, the scope of activities included in current surveys is too narrow, often excluding "nontraditional" learning activities (informal learning, continuing education, noncredit coursetaking, etc.) that are believed to be areas of rapid growth. Second, data on the "intensity" of learning activities (the time involved in learning) are unreliable. Intensity measures are important because they can serve as an indicator of the extent of human capital investment in adult learning, the amount of skill acquisition involved, or the opportunity costs of participation.

Goals, Incentives, and Disincentives. Adult learning encompasses a broad array of activities that can be engaged in for personal, social, economic, or other reasons. In addition, adults typically face a wide array of influences—at home, at work, and in their personal lives—that influence the likelihood of participation in learning. These incentives and disincentives can be as strong as an employer or professional requirement for skill-updating, or can involve more complicated influences such as competing demands on time from family and work responsibilities. In order to describe lifelong learning and understand why it does or does not occur, we need to know what role it plays in adults' lives—what larger goals it fulfills, and what incentives and disincentives affect adults' propensity to participate.

These factors are currently not measured well. A model of the decisionmaking process involved in lifelong learning is needed, as well as a reconceptualization of terms. At the least, surveys should assess in a more valid and coherent way (1) the domain of life to which a learning activity applies (e.g., one's personal life or job situation), (2) the intended benefits that serve as intrinsic motivators to participation, (3) the inducements (such as requirements) that serve as extrinsic motivators, and (4) the barriers, constraints, and other disincentives that inhibit participation.

Investments in Adult Learning. Two major policy issues concern the costs involved in adult learning. One issue is the extent to which employers are investing in employee training and skill development; some conditions that characterize the labor market (relatively high turnover rates, transportability of skills) may motivate employers to underinvest in these activities. The second issue is the extent to which the costs borne by individuals (including opportunity costs) restrict access to learning opportunities, particularly for economically and educationally disadvantaged adults.

Data currently exist on whether adult learners receive employer support and the amount the learner pays for participation. These data could be improved in two ways. It would be useful to have more comprehensive information on the nature and extent of employer support for learning opportunities, and on the nature (in addition to the amount) of the costs individuals incur when they participate in learning activities. A survey of employers would be very useful for addressing the former issue.

Adult Learning Providers. One important feature for both monitoring and policy purposes is who provides or sponsors learning activities for adults. Knowledge about providers contributes to our understanding of the role played by two key groups of policy interest, employers and postsecondary institutions. Ideally, one would collect information on providers from surveys of the relevant provider organizations. However, for adult learning, providers are so varied and decentralized that it would be virtually impossible to construct a universe list of all providers. It is possible, however, to construct such lists for the two key providers of employers and postsecondary institutions.

Asking adults who provides their learning opportunities is the simplest approach to determining the full range of providers. This approach is taken by NHES/AE and other surveys. But in situations where different groups (such as employers and postsecondary institutions, or community and government agencies) collaborate to provide education or training activities, adults are unlikely to be able to accurately report who the provider is. Survey questions to collect this information should be redesigned to provide more valid, standardized information in a format that allows adults to report on collaborative arrangements (when possible).

Instructional Delivery and New Technologies. Another central characteristic of lifelong learning is the means employed to deliver instruction, particularly the role of new technologies in instructional delivery. These technologies are important because they potentially offer a means of overcoming many of the access problems faced by adults, including the constraints of time and distance.

The ongoing series of Distance Education PEQIS surveys provides the best source of information on this delivery method. However, the most recent version of this survey did not include questions on the targeting of these programs to workers or other groups of adult learners. In general, we need more and better information on all forms of technology-based delivery systems and their role in adult learning, including the use of distance education to serve specific groups of adult learners.

Informal Learning. Informal learning is probably the oldest form of learning and the most common. New technologies and other factors may be making this form of learning even more common, as learners have access to more sources of information, and the continued specialization of knowledge makes it easier to acquire "chunks" of knowledge through less formal means. It is useful to know the extent to which and ways in which informal learning is either supplementing or replacing formal instruction as a means of adult learning.

Information on informal learning is currently restricted to work-related learning, which seems appropriate given policy priorities. However, this information is very limited, and the questions asked about this topic vary among surveys. A broader and more consistent approach needs to be taken to data collection on work-related informal instruction.

Services and Accommodations for Adults. One access issue applies primarily to postsecondary institutions, where special services, offerings, or delivery methods can be used to make learning more appropriate or accessible for the adult learner. Distance education and other technology-based delivery systems are one means of increasing access, but less technological approaches can be used as well—such as contract training; noncredit and continuing education courses; special services to transport, counsel or otherwise serve adults; and competency-based and other outcomes-based assessment and credentialing mechanisms.

Current data on these issues are very limited. Surveys of adults and of postsecondary institutions should be revised to better address these issues. In addition, one or more PEQIS surveys could be designed to specifically target the issue of services and accommodations provided for adults within postsecondary institutions.

Outcomes and Effectiveness. Obviously, one of the most important issues to assess for both monitoring and policy purposes is the outcomes associated with adult learning. Individuals, the government, and private organizations all contribute time and money to these activities in the expectation that they will receive benefits from doing so. Of particular concern to NCES are the benefits received by the adult learner.

Data to examine the labor market effects of participation exist in the longitudinal surveys conducted by the Bureau of Labor Statistics (BLS) and the Census Bureau. These data should be analyzed for this purpose. In addition, NCES surveys of adults should be expanded to ask about the types of benefits (if any) adults receive from their participation.

Government Role in Adult Learning. Finally, the federal government has begun taking a more active role in encouraging participation in adult learning, and policymakers need to know if these efforts are working. To help guide future policy

efforts, it is also useful to know how government and corporate support for adult learning in the U.S. compares to that in other countries.

Current survey efforts, some being conducted in cooperation with the OECD, are designed to address the issues of federal incentives and international comparisons of government support. However, more reliable data on the use of federal incentives could be provided through tax records. NCES should seek a cooperative agreement with the IRS to gain access to such information.

Recommendations. The task force believes that adult learning is an important area of education that should have a coherent data collection and reporting system within NCES. We recommend that the Center take steps to develop such a system, using (and expanding) the wealth of data that are currently available on this topic. The first steps should be (1) the development of a compendium report summarizing currently available information on lifelong learning (using an indicators format), and (2) the modification of existing survey instruments that collect information relevant to lifelong learning, many of which are scheduled for redesign in the immediate future. A number of subsequent tasks are possible after these initial steps have been taken, depending on the level of financial resources and other support available.

SECTION 2:
LIFELONG LEARNING ISSUES AND DATA GAPS

This section of the report lists the high-priority issues concerning lifelong learning that were identified by the task force, grouped into the twelve categories listed in table 1.3. This section also summarizes, for the issues within each category, (1) the data available to address these issues,[2] (2) the most important data gaps that need to be filled to address these issues, (3) recommended procedures to fill identified data gaps, and (4) data collection instruments that could provide sample questions for filling data gaps. This section provides a comprehensive listing of data gaps; in section 3, we recommend which of these data gaps should be addressed first.

The data collection instruments considered as sources to fill data gaps were those listed in appendix E, as well as surveys of adult education and training conducted by the following six countries: Canada, Finland, Germany, Sweden, Switzerland, and the United Kingdom.[3] Two surveys considered, the Survey of Employer-Provided Training (SEPT) and the National Employer Survey (NES), are not likely to be available in the future. The Bureau of Labor Statistics has no plans to re-administer the SEPT, and OERI has no plans to fund the NES after 2000.

1. The Adult Population

Who participates in adult learning is a fundamental question to ask about this enterprise, particularly since participation is often voluntary. Of particular interest are learner characteristics that relate to equity concerns.

High Priority Issues

1a. *What are the education attainment levels of the adult population?* What is the trend in education attainment over time?

1b. *What is the age composition and racial/ethnic composition of the adult population, and what are the education attainment levels of these sectors of the population?* What are the trends in these population characteristics?

1c. *What proportion of the adult population is learning disabled?*

1d. *How many adults, and which adults, use computers at home or at their workplace?* What are the trends over time in the use of computers by adults at home and at work?

Data Currently Available

Data to describe the basic demographic characteristics of adults are available in all surveys of this population. Education attainment data are also widely available, although questions on this topic have not been standardized. The main concern is distinguishing between high school diplomas earned in the "normal" manner and those earned after dropping out, such as through a GED test. Self-reported information on disabilities is available from the NALS, IALS, ILSS, NPSAS and its follow-ups, SIPP, CPS, and some administrations of the NHES, again using nonstandardized questions. It is unclear to what extent differences in question wording affect disability rate estimates, but it seems likely that there would be some effect.

It is obviously difficult to survey adults who do not speak English. The three most critical surveys for adult learning, the NHES/AE, NALS, and IALS, survey adults in both English and Spanish, which is the most feasible approach for including at least some non-English speakers.

Data on the use of computers at home exist only in the CPS; no survey asks adults about the use of computers at work, although the NES asks employers about computer use among different types of employees (managers, clerical support, etc.). Ideally, we would like to have information on not just the extent and frequency of computer usage, but also the purposes for which computers are used (particularly learning purposes).

Although not listed above, it is also important to have information on adults' labor market status. Whether an adult is employed, whether the adult is in a unionized job, the occupation and industry the adult is employed in, and the size of the adult's employer are all related to the likelihood of an adult's participation in learning activities. Without a complete listing of these labor market charac-

teristics, researchers cannot accurately model the labor market influences on participation. With the exception of information on union membership and employer size, these data are collected from most surveys.

The exclusion or under-inclusion of certain groups is common in surveys of adults. Perhaps the major exclusion is those adults who do not live in civilian households, including those in the military and in prison. Individuals at certain life stages that may be linked to participation (e.g., displaced homemakers, displaced workers) are also often not identifiable.

Most Important Data Gaps to Fill

- Questions need to be standardized across data sources that describe adults' background and characteristics, particularly questions on education attainment level and disability status.
- Questions need to include a full range of labor market information, including employment in a unionized job and employer size, on all surveys that examine adult participation in learning activities.

How to Fill Data Gaps

- Review relevant surveys and modify questions on education attainment and disability status as necessary.
- Add questions on employment in a unionized job and employer size to relevant surveys, including the NHES/AE, NAAL, ILSS, NELS, and NPSAS and its follow-ups.

2. Learning Attitudes and Skills of Adults

Participation in adult learning activities is mediated by adults' skill and knowledge levels and by their attitudes toward learning. Knowledge of these adult characteristics is particularly important to help understand participation patterns.

High Priority Issues

2a. *To what extent do adults* recognize the need *to be continuous learners?*

2b. *What are adults' perceptions of the* value *of lifelong learning activities for their own lives?*

2c. *To what extent do adults feel they have the skills and knowledge they need to function effectively at their current job and for the job they would like to have in the future?* To what extent are adults comfortable with their skill levels?

2d. *To what extent are adults, particularly workers, satisfied with existing opportunities to improve their education and skills?* What changes would they like to see in these opportunities?

2e. *What types of skills and knowledge do adults, particularly workers, seek to acquire through adult learning?* What are the trends in the types of knowledge/skill development received?

2e1. *How generic or transferable is the education and training that workers receive?* To what extent do workers perceive the education and training they receive to be useful for other jobs in their company, and/or for jobs in other companies?

2f. *What is the level of basic skills in the adult population?* What are the trends over time in skill levels?

Data Currently Available

With the exception of skill levels, data on these issues tend to be spotty. There is virtually no information available on adults' views on learning. The ILSS proposes to ask some questions related to this issue, but these questions may not be included in the final version of the survey, as they have not been given high priority. The IALS asked adults their perception of the adequacy of their English and math skills for job opportunities and for daily life, but it is not clear whether these questions will be included on the ILSS.

The NELS fourth follow-up is the only survey that asks adults directly about satisfaction with existing opportunities to improve education and skills; this survey asks adults to what extent they are satisfied with the opportunities their job provides for further education and training. The IALS may include a question asking adults the extent to which they wish their employer provided more training opportunities. This issue is also indirectly addressed in questions that ask adults if there were courses they would have liked to have taken, but did not (as in the NHES/AE).

Little information is available on the particular skills that adults seek to acquire through adult learning activities, although the SEPT (which is not scheduled to be repeated) collected such information for employer-provided training. Some information on skills sought can probably be gleaned (at considerable expense) from the course titles collected in the NHES/AE, IALS, and ILSS. The NLS-Y is the only survey that asks about skill generalizability or transferability. This survey asks adults if the skills they learned could be used at the same job with a different employer, at a different job with the same employer, or at a different job with a different employer.

Data on adults' skill levels in particular literacy domains are available from the national and international adult literacy assessments; data on vocational aptitudes are available from the NLS-Y.

Most Important Data Gaps to Fill

- We need better data on adults' perceptions of their learning needs and of the opportunities they have to fill these needs.
- We need data on skills sought in learning activities that can be linked to (1) adults' current skill levels, and (2) skills used in the labor market (see issue area 3). For work-related courses, we need at the very least to distinguish between courses that focus on skills development versus on other types of training (new worker orientation, health and safety, EEOC, etc.).

How to Fill Data Gaps

- Develop and add relevant questions on perceptions of skill and learning needs to relevant surveys (most notably NHES/AE, ILSS, and NAAL).
  - Potential survey items may exist in IALS, ILSS, and other countries' surveys (Finland).
- Add question(s) on perceived availability of learning opportunities to relevant surveys (most notably NHES/AE, ILSS, NAAL, and NLS-Y).
  - Potential survey items may exist in NELS, IALS, NES, and other countries' surveys (Finland, Germany, United Kingdom).
- Add questions to NHES/AE (or CPS supplement) on skills sought in learning activity that will allow linkage to skills used in the labor market (see issue area 3).
  - Potential survey items may exist in NLS-Y, NES, and SEPT.
- Add questions to ILSS and NAAL on skills sought in learning activity that will allow link to skills assessed.
  - Potential survey items may exist in NALS.

3. Labor Market Demand for Adult Learning

Much of adult learning is job-related, and thus related to the skills used and learning demands within the labor market. Tracking these labor market skill and learning needs helps project the demand for adult learning, both overall and for adults in various occupations or labor market sectors.

High Priority Issues

3a. *What skills are used in the labor market, and to what extent is the learning of new skills or knowledge characteristic of jobs in the labor market?* What are the trends in the use of skills and learning, overall and within specific jobs that dominate the economy? What are the trends in use of specific types of skills or learning? Are skills or learning demands becoming more polarized over time?

3a1. *To what extent are occupations characterized by continuous skill development?* Do occupations that have higher initial education demands also have higher continuing education demands? What is the trend over time in the need for continuous skill development (particularly in high-tech occupations)?

3a2. *What is the job composition of the labor market, by skill or education requirements? To what extent is the mix of skills required in the labor market changing*—in general, and in particular occupation or industry areas?

3a3. *What types of skills and learning are increasing and decreasing in demand?*

3a4. *To what extent do workers report that the skill, knowledge, and learning requirements for*

particular occupations are changing? To what do workers attribute these changes?

3b. *To what extent are the skills and knowledge required of workers specific to an individual employer, occupation, or industry, or generic in nature?*

3c. *To what extent do workers rely on (use) skills and knowledge acquired through formal education, rather than skills and knowledge acquired within the work context?*

Data Currently Available

The DoL O*NET system provides detailed information on job skills, by occupation category, including education requirements, skill requirements, and the extent to which jobs are characterized by continuous education or training. This data set has not been used by NCES, but could potentially provide a valuable source of information if we could link O*NET classifications to the occupations of adults in our data collections. At a much less detailed level, the IALS (and possibly ILSS) collects information on the skills adults use at work, focusing on skills related to those assessed in these studies. Trend data on changes in skills used could be available every year in O*NET (assuming O*NET could be linked to annual CPS occupation data), and every 10 years in IALS/ILSS.

Data on the demand for learning are also available in limited form from the NHES/AE, which asks about courses taken in response to employer requirements and whether the adult has professional continuing education requirements; and from the NES, which asks employers the extent to which workers in broad job-categories (managers, supervisors, technical workers, clerical staff, and frontline or production workers) need to continue their formal education.

It might be difficult for workers to determine the extent to which they use skills that were acquired at work or in schooling. As one variation on this, the SEPT asked workers how they learned the skills required on their current job, and the most important way they acquired their job skills—through formal training, informal training, learned on own, or "already knew job duties." A less direct way of determining the role of *initial* education in the development of work skills is to ask workers or their employers how long it takes for employees to become fully proficient in their job. The longer this takes, the greater the role of on-the-job learning compared to formal education. Two surveys (neither of which will be available in the future) provide data on this topic. The SEPT asks workers how long it was before they were comfortable performing their job duties. The 1997 NES asked employers how long it takes the average employee to become fully proficient in his or her job.

Participation in employer-sponsored learning indicates the extent to which work-based instruction is needed to supplement initial education during a worker's tenure. Likewise, participation in postsecondary education (for one's current job) indicates the extent to which formal instruction is needed to supplement a worker's initial education. These data are available from the NHES/AE.

The O*NET should provide information on the extent to which job skills are job-specific or generic, but there are no sources of information on the extent to which job skills are specific to an employer. As mentioned above, the NLS-Y asks adults if the skills they learned *through training* could be used at the same job with a different employer, at a different job with the same employer, or at a different job with a different employer. To describe skills used in the labor market, workers could be asked a similar question about the skills they perform on their jobs. It is unclear, however, whether workers can accurately make such judgments.

Most Important Data Gaps to Fill

- We need data on the skill characteristics of the labor market.
- We need data on the extent to which jobs demand continuous or periodic learning, in a form that can be linked to adults' perceptions of their education and training needs, the methods adults use to fill those needs, and their participation rates in work-related learning.
- As a long-term goal, we need to align data on skill levels, skills sought in adult learning activities, and skills used in the labor market.

How to Fill Data Gaps

- Requisite data on labor market skill demands may be available from O*NET, but we currently know little about the feasibility of using this data system to collect such information. First, we must learn more about O*NET and its applicability for our purposes. Then, if feasible:
- Use the O*NET system to describe the skill characteristics of the labor market.
- Use O*NET in combination with CPS or other Census data (describing the job composition of the labor market) to monitor skills used in the workforce.
- Work with DoL to find a cost-effective way to code occupations at the 3-digit level, permitting a detailed linking of occupations in NCES surveys to O*NET (to determine, for example, the proportion of adults in occupations that use skill X who have taken training to improve skill X).

4. Participation Levels and Patterns

Probably the most fundamental data on adult learning are those that describe the extent to which adults participate in learning, both currently and over time. A detailed examination of this issue—linking participation rates to the characteristics of adults, labor market needs, incentives and constraints to participation, etc.—provides the core of a monitoring system on adult learning.

High Priority Issues

4a. *How many, and what proportion of adults participate in lifelong learning activities?* In other words, what is the *extent* of participation, and what is the *incidence rate* for participation in lifelong learning?

4b. *How much time do adults devote to each lifelong learning activity?* In other words, what is the *intensity* of participation in lifelong learning activities? Do incidence and intensity rates suggest different levels of participation?

4c. *Which adults participate in lifelong learning activities and which do not?* Do participation patterns vary among groups of policy interest? How do participation rates vary across the adult lifespan?

4c1. *Which adults participate in each type of learning—formal, informal, work-related, and avocational?* Are informal learning activities more common among those who are more self-motivated learners?

4d. *What are the trends over time in participation in lifelong learning?* Are there groups of adults for whom these learning activities are becoming more or less popular? Are participation trends similar for different types of adult education?

4d1. *What are the trends in participation by adults in particular age-cohorts and at particular education attainment levels?*

4d2. *What are the trends in participation for each type of learning (formal, informal, work-related, and avocational)?*

4e. *How extensive are enrollments of part-time and adult students at postsecondary institutions?* What trends are occurring in these enrollments?

4f. *What are the characteristics of ABE/ASE-eligible adults who are not interested in participating in these programs (versus those who are interested)? What are the characteristics of ESL-eligible adults who are not interested in participating in these programs?*

Data Currently Available

Basic data on participation levels and the characteristics of participants in adult learning are widely available. While much information can be gleaned from existing data, no surveys collect information on the full range of formal and informal learning activities that encompass adult learning. Most surveys focus on formal activities, and some (SIPP, NLS-Y) focus primarily on work-related or employer-sponsored activities. The NALS examines only adult basic education (including ESL). No survey provides data on participation in informal avocational learning activities. The ILSS is the only survey that (if developed as currently planned) will include both formal learning activities and informal work-related activities.

Data on (for-credit) enrollments at postsecondary institutions are also available from a large number of sources, all of which allow one to identify "adults" by age. If one wants to define adults by delayed entry and/or part-time attendance status, NPSAS/BPS/B&B and NLS-Y are the only

available data sources. Trend data are available from most surveys, although some (IALS/ILSS and NLS-Y) have 10 or more years between each new data collection or cohort.

Data on the amount of time spent in specific learning activities (hours of instruction) are available in NHES/AE, IALS, ILSS, and SEPT. However, only the SEPT (which used daily training logs) is likely to have very reliable data on this topic. There are a number of issues that need to be resolved concerning measures of instructional "intensity" or "volume" (see appendix G). The most fundamental issue is how to collect reliable intensity data when one asks about activities over a full year (which is typically done to avoid concerns about a "seasonality" bias). For example, recent analyses of the NHES/AE suggest that even with built-in range checks, overall course intensity figures are often too large to believe.

To determine participation rates among those who are eligible for basic skills education or ESL, we must first define the "eligible" populations. For adult basic education participants, those who have not completed high school are typically considered the eligible population (e.g., NHES/AE uses this criterion). Since education level is available in all surveys of adults, this population can readily be identified. However, if better information were available on the specific literacy levels required in the labor market, basic skills criteria could also be set based on adult literacy assessment scores; this would provide a more direct measure of who is in need of basic skills education. (At least one researcher has noted that high school completion should not be used to define the eligible population, because a few adults with a high school diploma or higher degree have abilities below the basic skills level.) For ESL eligibility, the NHES/AE uses the criterion of those who do not speak English at home. Obviously, the limitation here is that some or all adults with limited English skills are often excluded from surveys. As previously mentioned, the NHES/AE, NALS, and IALS are administered in English and Spanish to allow the inclusion of native Spanish-speakers.

Most Important Data Gaps to Fill

- We need to expand the range of learning activities surveyed to include informal work-related activities and possibly informal avocational activities.
- We need *comparable* questions about informal activities on the surveys that include this topic.
- We need better data on the intensity of coursetaking.

How to Fill Data Gaps

- Add questions about informal learning activities to NHES/AE, using IALS as a model.
- Experiment with new ways to collect data on intensity; modify NHES/AE accordingly.
    - Potential survey items may exist in ILSS and other countries' surveys (Canada, Germany, Sweden, Switzerland, England).

5. Goals, Incentives, and Disincentives

After examining the extent of participation in adult learning and who participates, the next logical question to address is why adults choose to participate (or not).

High Priority Issues

5a. *What are adults' goals or reasons for participating in adult learning activities?* What proportion of their learning is for work-related versus avocational reasons? Of work-related learning, what proportion is taken for initial or qualifying training, retraining, skill upgrading, or career advancement?

5a1. *What are adults'* educational *goals when they participate in adult learning?* What proportion of adults intend to earn a degree or other credential? What type of credential do they seek (e.g., postsecondary certificate, company certificate, state or professional license)?

5a2. *What are adults' reasons for engaging in work-related learning?* What proportion is undertaken as a proactive effort to increase earnings or job status versus as a reactive effort to maintain a current job? What proportion is undertaken in response to technological or organizational change, or to job loss?

5b. *What are the incentives and disincentives to participation in lifelong learning activities that influence the behavior of adults* (including partici-

pants, interested non-participants, and uninterested non-participants)? To what extent is participation limited by a lack of incentives rather than by disincentives?

5b1. *Among those interested in participating in adult basic education programs, what benefits are perceived to accrue from participation, and what costs or other hindrances (e.g., lack of self-confidence) outweigh those benefits? Among those not interested in participating, what factors contribute to the perception that programs offer no benefits?*

5b2. *What are the motivating factors (incentives) among those who participate in each type of adult basic education program (ABE, ASE, ESL)?*

Data Currently Available

Data on adults' *educational* goals when participating in learning are fairly straightforward and readily available. These data are collected in the NHES/AE, IALS, ILSS, and SIPP.

In general, many surveys (NHES/AE, IALS, NELS, SIPP, NLS-Y) ask about learners' "goals" or "reasons" for participating in a learning activity, but the answers to these questions are typically confused or combined with the answers to another question—i.e., to which domain of life (worklife or personal life) does a learning activity apply? For example, one set of responses includes the following: to improve basic skills, get a credential, improve skills on job, get a new job, or personal reasons. Moreover, each survey includes a different combination of "goals," and some allow the learner to select only one while others allow more than one to be selected. Two surveys (SEPT, NELS) have questions about learning outcomes that could be reframed as goals or intended benefits; it would be interesting to ask both questions the same way (e.g., did you hope to get a promotion; did you get a promotion?).

We believe that *learning domains* and *intended benefits* (the latter replacing the terms "goals" and "reasons") should be clearly separated, or combined in a systematic way. One approach might be to first ask if a course was taken primarily for work or for personal reasons, then for work-related courses ask if the course was taken in reference to the adults' (then) current job or a future job. After establishing those learning domains, more focused questions could be asked about intended benefits (improve basic skills, improve family interactions, relieve stress, get a promotion, get a higher paying job, etc., as appropriate).

Intended benefits are one class of incentives to learning; these typically imply some internalization of the goal (i.e., the learner is self-motivated). Other incentives are external. For example, an employer's desire that employees take a training course or family pressure could induce an adult to participate in a learning activity. Other external motivators are legal, professional, or other work-related requirements. To capture the full range of incentives and requirements that may affect an adult's decision to participate in learning, we prefer the term *inducement*. In general, data on inducements to participation are insufficient. As mentioned above, information on intended benefits is often confused with other issues, making it difficult to clearly determine the learners' goals, or to compare goals from one survey to another. Questions on *external* inducements are not fully covered in any survey. The NLS-Y and NHES/AE ask if a course was taken in response to an employer requirement. The NHES/AE also asks a general question about whether the adult has continuing education requirements, but does not link specific coursetaking to the need to meet those requirements. The NELS asks those participating in work-related education if their training was required or encouraged by their employer, but this question is also not linked to specific courses.

Existing surveys tend to focus more on disincentives ("barriers" or "constraints") to participation than on inducements. Questions on disincentives are asked in NHES/AE, IALS, and ILSS. Each survey lists the reasons respondents did not participate in courses that they wanted to take, with some attempt made to capture situational (e.g., lack of time) and institutional (e.g., entry requirements) constraints. Nonetheless, these questions vary in format and response options and, at least in the case of NHES/AE, have been found to be unsatisfactory; one analyst refers to these items as providing data on "alibis."

The current lack of coherence and utility characterizing data on intended benefits, other induce-

ments, and disincentives reflects, we believe, a larger inability to model the decisionmaking process that adults undergo when considering participation in a learning activity. In general, data collection on these issues could benefit from a more rational approach to the decisionmaking process.

Most Important Data Gaps to Fill

- We need to develop items that clearly distinguish between the domain of life to which a learning activity applies (worklife or personal life, current or future job, etc.), and the intended or expected benefits that motivate participation; we also need to ask about these issues separately or combine them in a more coherent manner.
- We need more information on the wide range of external inducements (e.g., requirements) that motivate participation, both in general and for specific coursetaking activities.
- We need valid and reliable data on the factors that inhibit participation, particularly to distinguish those who face external (situational and institutional) barriers from those who face internal (motivational or dispositional) barriers.

How to Fill Data Gaps

- Develop a model for the learning decisionmaking process that includes the role of internal goals/incentives, external goals/incentives, disincentives or inhibiting factors, and the range of learning options to which an adult has access. In-depth interviews with a small sample of adults, using an ethnographic approach, would be appropriate for this purpose. Use this model to guide the following three activities.
- Experiment with different ways of asking about domains of learning and intended benefits, and add appropriate, consistently defined items to NHES/AE and other relevant surveys (most notably NAAL and ILSS).
  - Potential survey items may exist in other countries' surveys (Finland, Germany, England).
- Experiment with new items on inducements other than intended benefits and add appropriate items to NHES/AE and other relevant surveys. (NHES staff are currently conducting a study on this issue.)
  - Potential survey items may exist in NELS and other countries' surveys (Canada, Finland, Germany, United Kingdom).
- Experiment with new barriers items and add appropriate items to NHES/AE and other relevant surveys.
  - Possible survey items may exist in other countries' surveys (Canada, Finland, Switzerland, United Kingdom).

6. Investments in Adult Learning

A basic issue underlying all stages of formal learning—adult learning as well as compulsory and postsecondary education—is the extent to which financial concerns limit access or create inequities in the distribution of learning opportunities. To address this issue in adult learning requires information on learner costs and provider support.

6a. *Who pays the financial costs for adults' participation in learning activities (particularly work-related activities)*—what are the financial costs to individuals, employers, labor unions, and federal or other government agencies?

6a1. *How much do participants pay to participate in adult learning activities, particularly in adult basic education programs, and what do these participant costs cover* (transportation, childcare, books or supplies, etc.)?

6a2. *How often and to what extent do employers invest in workforce training, and what are the trends over time in employers' investment in workforce training?*

6b. *How do adult learners finance their education activities?*

6c. *How much and what types of employer support and incentives are offered for adult learning activities* (e.g., granting time off, linking bonuses or raises to education or training, partnerships with education institutions, training stipends, tuition reimbursements)?

Data Currently Available

In some cases, it is easy for adults to identify who covers the costs of their participation in learning

activities; they can tell us their own costs, and they typically know whether their employer is subsidizing instruction or whether they receive postsecondary student aid. Instruction subsidized by federal or state training programs may be identifiable by the learner as well, since these programs sometimes involve enrollment criteria and forms that make their government sponsorship evident. In other cases, however, the participant will not know who pays instructional costs; this is particularly likely in the case of collaborative arrangements, e.g., between an employer and an equipment supplier, an employer and postsecondary institution, or a postsecondary institution and government or philanthropic agency. Thus, surveys of adults provide limited information on funding sources. Ideally, such information should be supplemented by data from employers and postsecondary institutions in order to obtain a more accurate picture of how financial costs for adult learning are covered.

That said, information on who covers costs is fairly well addressed in existing surveys of adults. Data on postsecondary attendance costs typically include questions about whether the adult received any loans, grants, or scholarships. The NPSAS (and its follow-ups) are particularly thorough in this regard. These surveys include both participant and provider data, including student financial aid applications and records, institutional aid, tuition costs, and participant data on the receipt of employer or other aid and expenses paid in addition to tuition.

For other types of adult learning, the NHES/AE, IALS, ILSS, SIPP, and NLS-Y all include questions about attendance costs. The NHES/AE asks how much the adult paid to attend, and whether the employer covered some or all costs. The SIPP also asks about out-of-pocket costs and employer support. The IALS asks whether any of the following groups covered course fees: adult or family, employer, government, union or professional organization, other, or "no fees"; the ILSS will ask a similar question. The NLS-Y and SIPP include options for specific federal funding programs (JTPA, Veterans Administration, etc.).

Although a few surveys (NHES/AE, SIPP, NLS-Y) ask participants how much they pay to attend courses, detailed information on what these participant costs cover (tuition and fees, supplies, transportation, childcare, etc.) is collected only on the SIPP and (for postsecondary students) NPSAS and its follow-ups.

The earnings employers forego during the time their employees spend in learning activities may be the biggest investment that employers make in adult learning. Thus, it is important to know whether a course is taken during work hours; most surveys do ask this. Additional data on the extent to which employers invest in workforce training are available from the two employer surveys (NES and SEPT). Both surveys collect information on the amount of money employers invest in training. The NES asks for a global estimate, and may be of questionable reliability. The SEPT breaks out types of costs explicitly and asks for factual amounts, so it is probably more reliable.

The NES and SEPT also provide the best data on employer support and incentives. The SEPT asks about a long list of training offerings and incentives, including tuition reimbursement, training resource center, training plans, mentoring programs, and contributions to union or association training funds. The 1994 NES focused on training plans and offerings; later versions asked, for each of five groups of workers (managers, supervisors, etc.) whether the employer offers (or whether employees received) tuition reimbursements or time off for taking classes. The collection of these NES data by employee group is an improvement over more global questions, since not all workers may have equal access to such benefits. Since neither of these surveys is scheduled to be repeated (beyond 2000), trend data (or *any* future data) on these issues are not available.

As mentioned above, some surveys ask adults about employer support for the courses they take; this can provide an indirect indicator of overall employer support. The NHES/AE asks participants whether they received any of the following types of employer support: requirement to take course, time off with or without pay, classroom space, or payment of all or some costs. The NELS asks participants whether the employer provided tuition aid or financial assistance for attending an education institution. Finally, as mentioned above, the NPSAS includes information about support

received from employers for postsecondary coursetaking.

Most Important Data Gaps to Fill

- We need more specific break-out of costs incurred by participants.
- We need more complete information on employer support and incentives.

How to Fill Data Gaps

- Revise NHES/AE question on costs to include costs for tuition and fees, books and supplies, and possibly other categories (e.g., transportation, childcare).
  - Potential survey items may exist in SIPP and other countries' surveys (United Kingdom).
- Conduct a survey of employers, preferably in collaboration with BLS, to collect information on employer support and incentives for learning. This survey could also address a number of other important issues, such as employer offerings, instructional delivery methods, collaborative relations among providers, employer-specific skills training, and reliance on formal versus informal learning methods.

7. Adult Learning Providers

Adult learning can occur in many settings, with many sponsors; thus, the learning provider is a basic descriptive feature of adult learning. Of particular interest is the extent to which employers and postsecondary institutions serve as instructional providers, for all adults or for particular groups of adults.

High Priority Issues

7a. *What organizations (1) offer learning activities for adults, (2) fund learning activities for adults, and (3) provide curricula for adult learning activities?* In other words, who is the site provider, the funding provider, and the curriculum provider—particularly for adult basic education and work-related education? Who is moving into and out of each of these markets?

7b. *How extensive a role do formal education institutions and employers play in the provision of adult learning activities?* How are these roles changing over time?

7b1. *What is the role of postsecondary institutions, overall and by institutional type, in the larger service delivery system for adults?* What proportion of adult learners do they serve, and which learners do they serve? What is their role in the provision of adult basic education, work-related education, and avocational education for adults?

7b2. *Are employers offering more or less training to employees now compared to in the past?* If less, are employees making up for that training loss elsewhere?

7c. *Where do workers get their education and training?* What proportion of worker education is provided by employers, labor unions, or higher education? What proportion is provided by collaborations of these groups?

7d. *For each type of adult basic education program (ABE, ASE, ESL), what proportion of the teaching force is voluntary versus paid staff, and full-time versus part-time staff?*

7e. *What proportion of the adult basic education teaching force has formal education training? What proportion has formal training to educate adults?*

7e1. *What proportion of the adult basic education teaching force has formal training in diagnosing and instructing students with learning disabilities?* How well-prepared are adult education instructors to adapt teaching for students with learning disabilities?

7e2. *What proportion of the adult basic education teaching force has formal training in alternative learning styles and instructional methods?* How well-prepared are adult education instructors to adapt their teaching to adults' learning styles?

Data Currently Available

Most surveys of adult learning collect information on course providers. The NHES/AE includes a relatively long list of providers for each reported learning activity. For ESL and basic skills instruction, the NHES/AE collects information on both the provider of instruction and the location where the course was taken; for other courses, only the instructional provider is asked about. The ILSS, SIPP, NLS-Y, and BPS/B&B also include lists of

providers, although their lists are less extensive and are not always linked to specific courses. These surveys typically ask only for the instructional provider. The list in NLS-Y combines learning site with instructional provider (e.g., training seminar offered outside of work). For most purposes, it may be necessary only to distinguish between a limited number of providers, such as postsecondary institutions, employers, commercial agencies, government agencies, and labor unions. Thus, the more abbreviated lists in ILSS, SIPP, NLS-Y, and BPS/B&B may be sufficient for most purposes; from these data, we can determine the role that postsecondary institutions and employers play in the provision of adult learning opportunities.

One problem with all provider data is that the respondent may not always be able to distinguish who the "provider" is—particularly who sponsors (pays for) the instruction versus who provides (teaches) it. For example, an employer might pay for a community college to offer a customized training course at the worksite; depending on how the survey questions are worded and how well the participant understands the instructional arrangements, the participant could list either the community college or the employer as the provider. (First, of course, the analysts designing the survey must know which provider they are interested in knowing about; it is not clear that this is always accomplished.) Another problem is that not every survey asks for the same provider (e.g., the NHES/AE asks for instructional sponsor, SIPP for funding sponsor).

In sum, we can get information that should be reasonably valid in most cases for who provides learning opportunities from the NHES/AE and ILSS, and for a limited population of adults from BPS/B&B. In addition, the SIPP and NLS-Y provide reasonably good data on providers of work-related training. But these data are limited by their dependence on respondents' knowledge of provider arrangements. And as these arrangements become more complex (e.g., through contract training), current provider questions will become less satisfactory. The most obvious alternative is to rely on surveys of providers, particularly for information on funding and curriculum sources. Barring a universe list of all providers, surveys of postsecondary institutions and employers are best for collecting this information. Such provider surveys offer the best means to monitor collaborative arrangements and the roles of postsecondary institutions and employers in providing funding, curriculum, and other instructional support. Better yet would be surveys of providers linked with surveys of adult participants (as was done in the SEPT and is done in NPSAS); this strategy provides an especially rich data source for modeling the learning decisionmaking process and understanding access issues.

Any survey of adults that lists providers (including postsecondary institutions and employers) could be used to compare the incidence of formal education and employer-sponsored training. The NHES/AE, ILSS, SIPP, and NLS-Y (the latter two for work-related training only) are probably the best surveys for this purpose. To compare the magnitude (intensity) of formal education versus employer-sponsored training would require that comparable instructional-time measures be collected for each learning activity. The NHES/AE has the best data in this regard, but there are reliability and validity problems with instructional-time data (see issue area 4).

Questions about offerings can only be addressed through surveys of employers. The BLS has conducted a few employer surveys over the years, but no future employer surveys are planned. The NES has data on offerings for 1994 and 1997 (and possibly in 2000), but no future surveys are planned beyond 2000. We can approximate changes over time in employer offerings if we assume that changes in participation in employer-provided training reflect changes in offerings (rather than in employees' propensity to participate in offerings). For this purpose, the SIPP and NHES/AE provide trend data on participation in employer-sponsored training. Another approach is to examine changes over time in the proportion of adults who participate in learning activities that receive employer support. For this approach, the data sets that contain information on employer support (NHES/AE, NELS) could be used.

Evaluating where workers get their education and training can be more difficult than it seems. The

typical survey of adults (such as NHES/AE and ILSS) asks about education and training experiences over an extended period of time (e.g., 12 months), but ask only about current work status—so we cannot always tell if someone was employed by their *current* employer at the time of their participation, or where they were employed at that time. In most cases, this is probably not a problem. But more accurate and informative data could be obtained by asking about training activities within the context of the adult's work history (as in NLS-Y), or by asking about training that was received to improve skills "while working," as is done in SIPP (other questions are asked about training to obtain a new job).

There are no national data on the adult basic education teaching force, other than what may be included in past national evaluations of adult literacy programs. It is difficult to collect information on these instructors because of the variety of organizations and agencies for which they work. Data are available on postsecondary instructors' formal training in adult education (in IPEDS and NSOPF), but these data cannot be linked to whether an instructor teaches adult basic education. Such information could be added to the NSOPF, and parallel information could be added to the Schools and Staffing Surveys to find out which K–12 teachers provide adult basic education. However, even with more information on K–12 and postsecondary teachers, our data would be incomplete, as adult basic education courses may be taught by retired teachers or other adults with no formal teaching experience. Two other possible data sources exist. First, state offices of adult education could be surveyed about their requirements for state adult basic education (ABE) grantees, including the educational requirements for instructors. Second, national evaluations of ABE programs could be reviewed and national adult literacy organizations could be queried to learn more about staff qualifications (and possible procedures for creating a universe list of ABE providers).

Most Important Data Gaps to Fill

- Questions targeted to adults about providers need to be standardized to yield the most valid and reliable data possible, including options for respondents to unambiguously indicate collaborative arrangements among providers.

How to Fill Data Gaps

- Experiment with new ways of asking questions about providers, ideally in combination with questions about employer support; revise NHES/AE, ILSS, and NAAL (and other relevant survey) questions accordingly.

8. Instructional Delivery and New Technologies

New technologies have enormous potential for increasing access to both formal and informal learning opportunities, and for minimizing inequities in learning opportunities among certain groups of adults, such as those in rural locales or with physical disabilities. This potential makes the use of technologies in instruction an important characteristic to monitor.

High Priority Issues

8a. *What instructional delivery methods are used in adult learning activities?* To what extent are new technologies (including the Internet, CD-ROMs, other computer-based systems, and telecommunications) used as a delivery mechanism for adult learning?

8b. *How are technology-based instructional programs developed and offered?* How many organizations that offer technology-based instruction for adults provide both the curriculum and instructional delivery system? How many use outside vendors for curriculum development? For instructors or instructor training? For delivery system implementation?

8b1. *What are the trends in the use of computer and telecommunication technologies as a means of delivering instruction in adult learning?*

8c. *What proportion of adults use new technologies at home specifically to acquire new knowledge or skills?* Which technologies do they use, and how frequently do they use them?

8d. *How many adults, and which adults, have participated in an adult learning activity utilizing a technology-based delivery system?*

8d1. *How many adults are enrolled in adult basic education programs that use computer or telecommunications technologies?*

8e. *What proportion of employers offer their employees technology-based instructional activities?*

What types of technology-based delivery systems are used?

8f. *What proportion of postsecondary institutions offer technology-based courses for adults?* What types of technology-based delivery systems are used? To which groups of adults (e.g., workers seeking new skills, professionals in continuing education, adults in remote areas, ESL adults) are these courses targeted?

8f1. *What are the characteristics of postsecondary institutions that offer technology-based instructional programs (e.g., location, type of institution)?*

8g. *How many postsecondary institutions (and corporate universities) offer distance education programs, and how many adults participate in these programs? To what remote sites is distance education delivered* (e.g., students' homes, branch worksites or campuses, elementary or secondary schools)? *To what populations is it targeted?*

8h. *What proportion of potential providers (such as schools, postsecondary institutions, libraries, and community-based organizations) have advanced technologies that are capable of instructional delivery?*

Data Currently Available

Two surveys (one ongoing) have detailed information on instructional delivery methods, one for employer-provided training (SEPT) and one for postsecondary education (NSOPF). The SEPT asked employees whether their training was provided through classroom instruction, small-group or one-on-one discussion, a computer tutorial, video instruction, hands-on learning, or observation. The last administration of the SEPT was in 1995; given the rapid pace of change in instructional technologies, SEPT findings are probably no longer relevant for describing current employer-sponsored training. For (for-credit) postsecondary education courses, the NSOPF distinguishes among classes taught by lecture or discussion, seminar, lab or clinic, apprenticeship or field work, or "other"; this survey also distinguishes among courses that involve face-to-face, computer, TV-based, or other interactions. If all postsecondary education is considered adult learning, the NSOPF is a useful source of information on instructional delivery. However, if one wants to exclude the traditional or full-time student, NSOPF is of less use, since these students are not identified within this survey. (NSOPF data can be linked to faculty who teach more or fewer continuing education courses.)

Limited data are available to address the issue of how technology-based programs are developed and offered. To thoroughly answer this question requires a survey of providers. One provider survey does provide relevant information. The PEQIS surveys on distance education (conducted in 1995 and 1998) collect information on the prevalence and nature of this form of technology-based instruction. Additional data are available from surveys of adults, which provide information on the extent to which adults participate in technology-based programs. As mentioned above, the employee component of the SEPT asks if training was received via computer or video instruction, but these data are not available beyond 1995. The 1999 NHES/AE asks if instruction (in every area except apprenticeships) occurred through distance education, and if so, the specific technologies used for student-instructor communications. The ILSS may ask if courses were taken through distance education, and if so, with what method. However, the options for specifying the mode of distance education in the NHES/AE and ILSS differ greatly. The former includes radio or TV, e-mail, Internet, satellite broadcasts, video conferencing, or computer conferencing. The latter includes television, radio or videotapes, Internet, or correspondence.

The best data on postsecondary institutions' technology-based offerings come from the PEQIS surveys. On the 1995 survey, courses for adults can be fairly well approximated. One question identifies the number of distance education courses targeted to adult basic education students, professional continuing education students, and other continuing education students; another question asks if professional or other workers are targeted by any distance education courses. (It would be helpful to add "workers" to the first question on number of courses.) The type of institutions that offer distance education can be identified through the PEQIS link to IPEDS data. The 1998 version of the PEQIS distance education survey does not provide information on students

served by these programs, and so cannot be used to determine distance education offerings for specific groups of adults. (This change reflects a change in priorities on the survey, rather than problems with the original items.)

In short, there is no source of information on the full range of instructional delivery methods used in adult learning activities; however, data do exist on distance education within the NHES/AE and PEQIS surveys. There is no information on employer involvement with distance education (other than indirectly through questions in the 1995 PEQIS). But since this is probably a very limited delivery method among employers, this lack of data may not be a problem.

Most Important Data Gaps to Fill

- In general, we need better data on all nontraditional forms of adult learning, including learning delivered via new technologies. Given the rapid rate of change in these technologies, this information should be collected relatively frequently.
- We need to assess the extent to which distance education is targeted to adult learners, since this instructional delivery system could be a particularly effective means of overcoming the time and location constraints faced by these individuals.

How to Fill Data Gaps

- Develop and add questions to surveys of adults (e.g., NHES/AE, NAAL) to monitor the use of new technologies in instruction, including but not limited to distance education (e.g., use of the Internet).
- Regularly administer the Distance Education PEQIS; review and revise as necessary this survey's ability to identify adult learners and workplace skill development.

9. Informal Learning

Formal learning is assessed more often than informal learning, probably because it is more amenable to policy intercession and because it is easier to measure. But informal learning has always been an important form of adult learning. Informal learning may become even more important as learning becomes increasingly specialized and in need of constant updating, and as information sources (such as CD-ROM programs and the Internet) become more widely accessible.

High Priority Issues

9a. *What informal education and training methods do workers use?*

9b. *How much of adult learning is informal versus formal?* In what situations and for what types of knowledge/skill development is informal learning engaged in rather than formal learning?

9b1. *To what extent do workers use formal or informal methods to develop and update their skills and knowledge?*

9b2. *What shifts are occurring over time in adults' participation in formal versus informal learning?* Are there greater shifts among some types of adult learning (e.g., basic skills) or for some groups rather than others (e.g., by SES or occupation)?

9b3. *What is the relationship between participation in formal and informal education?* That is, are formal and informal education complementary or mutually reinforcing—do those who engage in more of one type engage in more or less of the other type?

Data Currently Available

Most surveys collect information only on formal learning activities. Currently, the only exceptions to this are the SEPT and NLS-Y, both of which ask about formal and informal *work-related* activities. (The other survey that is focused on work, SIPP, does not distinguish between formal and informal activities; it asks about "any training to improve job skills" and "any training to get a new job.") Both the SEPT and NLS-Y appear to be good sources for comparing the relationships between formal and informal *training*.

The ILSS proposes to include a few questions on participation in informal work-related training, so in the future data may be available from NLS-Y and ILSS. Data from the SEPT are the most informative, however. For example, the SEPT asked workers how they learned the skills required on their current job—through formal training, informal training, or on their own—and which method was most important. No similar data are available in ongoing surveys.

Reliability is a major issue for data on informal learning. Because these activities tend to be less structured, of relatively short duration, and often embedded into one's normal work or life activities, it is easy for learners to forget that they participated in such activities. The SEPT avoided this problem by collecting participation data using employee logs (completed daily over 10 days); the NLS-Y minimizes the problem by asking about informal activities taken only within the past 4 weeks. (There appears to be less concern with a "seasonality" bias for informal rather than formal activities.) The ILSS proposes to ask about informal activities within the past 12 months, so these data may not be as reliable as the NLS-Y or SEPT data.

Not surprisingly, current definitions and categories for informal work-related learning vary by survey. The SEPT counted as informal activities those that were unplanned and unstructured, excluding self-instruction. The NLS-Y defines informal training as that received from a supervisor or coworker, or self-paced instruction. The ILSS plans to include conferences, seminars, shop/quality circles, supervisor or coworker instruction, and self-learning. This is obviously an (other) area of lifelong learning that is as yet not clearly defined. Because of the lack of consensus on how to define informal learning, we do not propose that NCES attempt to develop items on informal *avocational* learning at this time. Nonetheless, to fully describe all forms of adult learning, we will need to eventually capture this part of adults' learning experiences.

Most Important Data Gaps to Fill

- We need better data on work-related informal learning, collected in a consistent manner.
- We need to collect data on informal work-related learning more frequently than is currently done (using the NLS-Y and ILSS).

How to Fill Data Gaps

- Develop a standard format with which to ask about informal work-related education, using existing questions and data as a guide.
    - Potential survey items may exist in SEPT, NLS-Y, ILSS, and other countries' surveys (Finland, Germany, Switzerland, United Kingdom).
- Add questions on informal work-related learning to more frequently administered surveys, such as the NHES/AE and/or NAAL.

10. Services and Accommodations for Adults

Given their work and family responsibilities, adult learners often have special needs that are different from or more extensive than those of younger students. To ensure reasonable access to adult learning activities, providers need to offer programs and services that address these needs. To monitor access, we need to track these services and accommodations.

High Priority Issues

10a. *To what extent are postsecondary institutions providing alternative offerings or delivery methods that meet the needs of adults?* To what extent are they working collaboratively with employers or vendors to provide contract or customized training, "just-in-time" training, and/or worksite-based training?

10b. *To what extent are postsecondary institutions and other providers offering competency-based assessment, portable credentials, or other outcome-based approaches that allow adults to document their skills and knowledge acquisition?*

10c. *To what extent are postsecondary institutions and other providers offering support services or other special accommodations to improve access for adult learners, or to otherwise better serve adult learners* (e.g., special counseling services for adults, transportation services, childcare, extended hours for student service offices, streamlined registration procedures, evening and weekend offerings)?

10d. *What is the extent of noncredit coursetaking within postsecondary institutions?* Which institutions offer it and for what purposes (to generate revenues, for public service, to support economic development, etc.)?

10d1. *How many adults, and which adults, participate in noncredit coursetaking at postsecondary institutions, and for what purposes?* What trends are occurring in noncredit coursetaking?

Data Currently Available

Other than the data discussed above on distance education, there are no data on alternative offer-

ings and delivery methods used by postsecondary institutions to serve adults. To address this issue, we would first have to specify the alternative offerings and delivery methods that are of interest, then add the relevant questions to existing postsecondary surveys or to one or more PEQIS surveys. Since most postsecondary institutions do attempt to meet adults' needs, the focus should be on those offerings that are of greatest policy relevance and on discerning in what ways and how much of an institution's programming is adapted to meet adults' needs. Although a survey of providers would be the best source of data on postsecondary services, offerings, and credentialing methods, a survey of adults could provide related information on the extent to which these offerings are used or desired, or to which their absence is perceived to be problematic.

Few data exist on noncredit coursetaking. To estimate the extent of noncredit coursetaking within postsecondary education, the NSOPF provides counts of how many remedial and continuing education courses faculty teach that are noncredit. This will probably yield an undercount of noncredit courses, however, as these courses are often taught by teaching assistants, a group that is not included in the NSOPF. A recent effort to develop a PEQIS survey on noncredit coursetaking was abandoned after it was discovered that in many institutions, no one person could report noncredit offerings across the institution; these courses are often kept "off the books" or reported separately by department.

In theory, the NHES/AE could be used to estimate how many and which adults participate in noncredit coursetaking, but the current structure of the survey does not lend itself to this type of analysis. Although the NHES/AE separates out courses taken as part of a postsecondary credential program, all other courses taken at postsecondary institutions are not distinguished as for-credit or not-for-credit.

Most Important Data Gaps to Fill

- We need to collect data on services and accommodations that are offered for adult learners, particularly those services and accommodations that are likely to improve access for traditionally under-represented groups. (Note that this data need is related to the need for better data on disincentives and barriers, as discussed in issue area 5 above.)
- We need better data on nontraditional forms of adult learning, including noncredit postsecondary coursetaking, contract training, and alternative assessment and credentialing procedures.

How to Fill Data Gaps

- Develop and regularly administer a PEQIS survey on postsecondary services and accommodations for adults.
- Expand/modify questions on postsecondary student and provider surveys (IPEDS, NPSAS/BPS/B&B, NSOPF) to collect better data on nontraditional forms of adult instruction, assessment, and credentialing.
- Restructure NHES/AE so that it can provide counts of noncredit coursetaking at postsecondary institutions.
- Examine the feasibility of a PEQIS on contract training to examine this form of instructional delivery. (Note that this survey could also address more general questions about collaborations among providers.)
- Consider a PEQIS variation that would ask department chairs about noncredit coursetaking, and/or other nontraditional assessment or credentialing procedures.
- Potential survey items on some of these topics may exist in other countries' surveys (Germany, United Kingdom).

11. Outcomes and Effectiveness

Learning is intended to produce benefits for the individual, benefits that can range from something as inconsequential as an enjoyable way to pass one's time to something as substantial as increased earnings. Employers also expect financial benefits from the provision of worker training. Monitoring learning outcomes documents the value of adult learning activities and helps explain why adults choose to participate in this activity.

High Priority Issues

11a. *To what extent do adults use the skills and knowledge gained from an adult learning activity, either at work or in their personal life?*

11b. *To what extent do adults judge their learning activities to provide specific job-related benefits or returns,* such as increases in earnings ability, better job satisfaction, improved ability to function at work, greater opportunity for job mobility?

11c. *To what extent do adults participate in learning activities that result in a credential, and what type of credential do they obtain* (e.g., degree, state license, institutional certificate, company certificate)?

11d. *What are the economic returns to adults for participation in work-related learning activities?* What economic costs and benefits do adults accrue from their participation?

11d1. *What are the economic returns to education for adults at different education attainment levels?* What are the trends in these returns over time?

11d2. *What are the economic returns to employers for investing in employee training and education?*

11d3. *Does the availability of employer-provided training make an employee more or less likely to remain with an employer?* To what extent does less opportunity for training encourage employee turnover, and to what extent does high turnover discourage the provision of formal training?

Data Currently Available

Adults' reports of the extent to which they use skills acquired in learning activities are collected in IALS, probably in ILSS, and in NLS-Y and SIPP. (The SIPP asks which types of learning activities were most useful on the job.) If we rely on IALS/ILSS for these data, they will be available on a 10-year cycle.

In terms of specific job outcomes, the NELS asks participants about a range of benefits received from participation (such as increased opportunities for promotion, wider range of job options, increased pay, and increased job responsibilities or effectiveness). The ILSS may include a similar question. It would be advantageous to also have such a question on NHES/AE or NLS-Y, where a broader range of adults and/or employment data is available on a more routine basis.

Complete data on the credentials adults either seek or receive through adult learning activities are not available. Many surveys ask about the *education* credentials that were sought and/or received. The only surveys that ask about *other* credentials received (professional licenses, certificates, etc.) are the BPS/B&B, which are restricted to adults who have enrolled in college (or received a bachelor's degree). The NELS provides some general information on this issue, since it asks about the attainment of various types of professional licenses since leaving high school, but these attainments cannot be linked to specific coursetaking. It is also not clear that company certificates, such as a Novell Technician Certificate, would be reported on NELS. The ILSS may include a question about credentials, but in a form that is too broad to be very useful.

While it is not feasible for NCES to conduct the type of controlled study that could determine the economic returns to adult participation in work-related learning activities, there are data sources that can provide strong evidence on this topic. The SIPP and NLS-Y both contain longitudinal data that allow one to track participation in work-related learning, along with changes in income level and employment status. The NHES/AE, NAAL, and ILSS could also provide suggestive evidence, particularly if questions were added to these surveys about income level prior to the 12-month reference period. (Changes in income could be compared for those who did and did not participate in learning activities over the 12-month period, controlling for other factors that influence participation, such as employer size.)

The NLS-Y is the best data source for examining the effects of training on employee turnover. This survey asks about training activities within the context of the adult's work history, thus linking training to particular employers, while also tracking changes in employment over time.

Returns to education for adults at different education attainment levels have been fairly well-studied, most notably in the NCES report *Education and the Economy: An Indicators Report.* To further examine this issue, any data set on the adult population can be used as long as it includes individual-level measures of education, income/salary, and age and/or work experience (the latter two as controls). Data sets meeting this criterion include the CPS, ACS, NHES/AE, NAAL, ILSS, SIPP, NLS-Y and NELS. However, recent

evidence suggests that returns to education may be mediated by the nature of one's job—specifically, by whether or not the job is technical in nature. Teasing out this type of mediating effect would require detailed information on occupations (suggesting the need to link to O*NET data).

Most Important Data Gaps to Fill

- We need to make use of available information on labor market returns.
- We need better data on the specific outcomes participants achieve (based on their own perceptions).
- To examine changes in income among adults who do and do not participate in learning, we need data on income prior to the survey reference period.

How to Fill Data Gaps

- Analyze SIPP and NLS-Y data to provide information on the labor market returns to participation in (work-related) adult learning activities.
- Add items to NHES/AE to determine the extent to which adults participate in learning to receive alternative credentials (such as those awarded by a company or industry).
  - Potential survey items may exist in other countries' surveys (Germany, United Kingdom).
- Experiment with questions asking about specific job benefits, using NELS as a guide, then add appropriate questions to NHES/AE, NAAL, and/or ILSS.
  - Potential survey items may exist in other countries' surveys (Canada, Finland, Germany, Switzerland, United Kingdom).
- On the NHES/AE, ILSS, and other surveys that collect participation data over a given reference period, add a question about income level prior to the reference period.
- Consider linking data on intended benefits (see issue area 5 above) to data on actual benefits, as a measure of effectiveness.

12. Government Role in Adult Learning

Government support for adult learning has been relatively minimal, under the assumption that market forces balance the supply of adult learning opportunities with the demand for such opportunities. However, as the need for adult learning rises, this assumption is increasingly questioned, and the government has taken a more active role in fostering adult learning. Policymakers have an obvious interest in knowing the extent to which their efforts are effective and appropriate.

High Priority Issues

12a. *To what extent do adults use the Hope Scholarship and the Lifelong Learning tax credit?* Have these recent federal initiatives increased participation in adult learning?

12b. *How does government and corporate support for adult training and education (particularly for workers) in the U.S. compare to that in other countries?*

Data Currently Available

The 1999 NHES/AE has data on the use of the Hope Scholarship and the Lifelong Learning Tax Credit. NPSAS 2000 will also collect information on the use of these incentives among college students. We do not know if the SIPP or NLS-Y surveys will include questions about these initiatives in future administrations, but they would be useful surveys in which to add such items, because of their large samples and longitudinal design.

The ILSS is attempting to address the issue of government and corporate support for adult learning across countries, but it is difficult to do so through this type of survey, since adults are often not aware of the existence or extent of government and corporate support. More complex studies undertaken by OECD (e.g., past work of Hong Tan) may be more appropriate for addressing this issue.

Most Important Data Gaps to Fill

- NCES surveys ask about the use of Hope Scholarships and Lifelong Learning tax credits, but more reliable data on these issues could be obtained directly from the IRS.

How to Fill Data Gaps

- To provide the most reliable data on the use of federal adult learning incentives, NCES should work out a cooperative agreement with the IRS to allow NCES access to relevant information on the use of such incentives.

SECTION 3: RECOMMENDATIONS

The Lifelong Learning Task Force was charged with developing a set of recommendations to help NCES management in its efforts to develop a strategic plan for the Center's future work. Given the inevitable uncertainties concerning fiscal and personnel resources, the task force was asked to propose a series of recommendations ranging from less to more ambitious. To meet this goal, the task force developed a series of recommendations designed to answer the following questions:

- Should NCES develop a systematic data collection and reporting system on lifelong learning? If so,
- What data collection instruments should be included in this system?
- What actions should be pursued to develop this system, and which of these actions should be pursued first?
- What organizational structures should be used to support these efforts?

As discussed below, the task force recommends that NCES pursue the development of a data collection and reporting system on lifelong learning, using currently available data collection instruments. The first steps in this effort should be to consolidate information available from existing data sources while simultaneously improving the validity and comprehensiveness of the data provided by existing sources. These efforts would improve both the lifelong learning data *collection* system and the lifelong learning *reporting* system. To do this work, we propose that an interprogram team be designated to allocate a certain percentage of their workload to these efforts. It is imperative that staff workloads be adjusted to accommodate these tasks within a regular work schedule, rather than adding these tasks to a full schedule of work.

Value of Developing a Lifelong Learning System

The review of the literature, views of TRP members, and breadth of current initiatives on lifelong learning convinced task force members that adult learning has become an area of important and lasting policy interest. However, this alone does not mean that NCES should develop a data collection and reporting system on this topic. To determine whether the Center should pursue a lifelong learning agenda, we reviewed the data collection mandates for NCES and BLS, then developed a list of "pros" and "cons."

Data Collection Mandates

The mandate for NCES is as follows:

"The purpose of the Center shall be to collect, analyze, and disseminate statistics and other *data related to education* in the United States and in other nations." (Section 406(b) of the General Education Provisions Act, as amended (20 U.S.C. 122le-1) January 1995, emphasis added.)

This mandate can be interpreted narrowly or broadly, depending on how one interprets the phrase "data related to education." Narrowly interpreted, this phrase refers to the formal education system, including K–12 and postsecondary education. These are the existing education *systems* in the U.S., and the areas on which the federal government has traditionally focused its education policy initiatives. Based on this interpretation, one could argue that NCES should continue to focus its efforts primarily on this sector of education.

Broadly interpreted, "education" refers to a wide range of learning processes, all of which contribute to the quality of life by improving the social and economic functioning of individuals and society as a whole. Learning that occurs outside of the formal education system also contributes to these ends, and thus also deserves federal attention. The federal government has traditionally paid little attention to this area, except to fund adult basic skills education and job training programs for disadvantaged individuals. Federal policymakers have, however, recently expanded their focus to include the education of adults in general, through initiatives such as the Lifelong Learning and Hope Scholarship tax credits.

The Lifelong Learning Task Force endorses the broader interpretation of NCES' mission. We feel

this interpretation more accurately captures the spirit of the law, and better represents NCES' current work (e.g., the Center's work on early childhood education and on the relationship between education and economic outcomes). In our view, a lifelong learning agenda does fit within NCES' mandate, or at least under one reasonable interpretation of that mandate.

But could lifelong learning perhaps fall under BLS' mandate? In theory, collecting data on work-related adult learning could be considered a responsibility of BLS, as that office is mandated to:

"acquire and diffuse among the people of the United States useful information on subjects connected with labor, in the most general and comprehensive sense of that word, and especially upon its relation to capital, the hours of labor, the earnings of laboring men and women, and the means of promoting their material, social, intellectual, and moral prosperity" (29 U.S.C.A. §1).

In practice, however, BLS is organized into offices that collect data on economic indicators that are only indirectly related to adult learning: Employment and Unemployment Statistics, Prices and Living Conditions, Compensation and Working Conditions, Productivity and Technology, and Employment Projections. Current indications are that BLS expects to collect all future data on worker training and education exclusively through the NLS-Y, which collects data only from a cohort of adults. Given this focus, BLS does not appear to be a feasible source for systematic and complete information on lifelong learning.

With that background, the Lifelong Learning Task Force generated the following "pros" and "cons" associated with the development of a lifelong learning data collection and reporting system.

Pros

- Adult learning appears to be an area of growing, permanent importance, making data on this topic important to monitor for general policy purposes.
- More specifically, this data collection system would provide data relevant to a number of recent policy initiatives, such as the Hope Scholarship tax credit, the Lifelong Learning tax credit, and the Workforce Investment Act (WIA, which emphasizes linking adult education and worker training).
- A lifelong learning data collection system would explicitly recognize that education and learning occur beyond the formal education system, and that these learning activities are an important part of the U.S. social and economic systems; in other words, it would help foster the goal of creating "a nation of learners."
- The Center is well-positioned to address this topic, and doing so would build on existing adult education efforts, including the NHES/AE, national and international adult assessments, and postsecondary data collections.
- This system would also provide a framework for coordinating existing data collection and reporting efforts, providing a more coherent and comprehensive view of learning after the completion of compulsory education.
- This system would coincide with and support ongoing OECD work (to which NCES contributes) to develop international indicators that describe lifelong learning and continuing education and training.
- This system would make U.S. data collections more comparable to those in many other developed countries, where national surveys of continuing education are routinely administered (e.g., Canada, Finland, United Kingdom, Germany, Switzerland, Sweden).

Cons

- This data collection system does not fit within the narrow (traditional) interpretation of NCES' mission, and thus could be viewed as an inappropriate use of funds.
- NCES staff and fiscal resources are tight; there are currently no resources available for expanding NCES' mission.

Taking these factors together, the task force decided that the "pros" outweigh the "cons." Regarding the first "con," as discussed above, we believe the Center can and should argue for a larger, broader interpretation of its data collection mission. We do acknowledge the very real constraint of tight resources, and recognize that any actions

NCES takes in this area are likely to be limited by this constraint. However, we do not believe the Center's *vision* should be limited by a lack of resources; we propose a vision of change in this report that we hope can serve as an impetus for expanding resources that will keep the Center at the forefront of policy-relevant data collection.

By accepting the value of creating a lifelong learning data collection and reporting system, we reject the "status quo." That is, we do not believe that current efforts within the Center are sufficient to meet the existing need for information on lifelong learning. Current efforts are insufficient for two reasons. First, too many important issues are left unaddressed by our current data collection system—issues such as the prevalence of nontraditional forms of adult learning, the decision-making process and incentives that affect participation in adult learning, and the role of the workplace in determining the need for adult learning. Second, NCES' existing data collection efforts fail to provide a *coherent system* of data collection and reporting. By continuing these efforts in an uncoordinated fashion, the Center will fail to capitalize on its existing resources, and will miss an invaluable opportunity to proactively advance its mission and its service to the American public and policymakers.

Perhaps more importantly, we believe that NCES should adopt longer-term goals that recognize the globalization of economic and social systems and the more integrated perspective on education inherent in the term "lifelong learning." With this in mind, our recommendations are predicated on the following implicit goals.

- Short-term goal: Develop a comprehensive data collection and reporting system that monitors *adult education and training.*

  Long-term goals:

- Develop a Center-wide, integrated, comprehensive data collection and reporting system that monitors *lifelong learning as broadly conceived,* from early childhood through adult learning.
- Coordinate NCES' national data collection efforts with their international counterparts, so that national collections become expanded or revised versions of their international collections rather than independent efforts.

Proposed Data Framework

Although our task force focused on identifying data gaps rather than data availability, it is clear that existing data within NCES, especially if supplemented with DoL and Census data, provide a strong foundation for building a lifelong learning monitoring system. We propose that the core of such a system be composed of three existing surveys—the NHES/AE, NAAL, and ILSS. Together, these data sources provide extensive information for describing adults' participation in learning activities, their skill levels, and an international context in which to interpret findings. For supplemental information on work-related and employer-sponsored training, these core data sources should be supplemented with data from SIPP and NLS-Y. Historically, NCES has seldom used these data sets, but they are potentially rich sources of information on lifelong learning that should not be ignored. For supplemental information on the post-secondary sector of adult learning, the core data sets would be supplemented with the NPSAS and its follow-ups, NSOPF, and the PEQIS system.

Although all of these surveys are useful in their current form, they require expansion and revision in order to provide more complete, reliable data. As discussed below, some of the data gaps identified in section 2 should be targeted for immediate attention. Since each of the core surveys (NHES/AE, NAAL, ILSS) is currently in the process of being revised, we urge NCES management to act quickly to support a coordinated effort to revise these surveys according to the priorities outlined in this report.

In addition, information from the three core data sources should be linked to labor market data. Exactly how to do this is as yet unclear, but our work suggests that the O*NET and CPS data on job skills and employment patterns may provide viable sources for linkage. Currently, we know too little about the structure and operations of these data collections, or about cost-effective means for coding occupation data at a detailed level, to make specific recommendations on how to use occupational skills data. As discussed elsewhere in this report, we need to learn more about how to use such information.

One source of information would be incomplete in the data system outlined above—information

from providers. To remedy this situation, we propose that NCES consider the addition of an employer survey, to be administered in collaboration with DoL, and a modification of the PEQIS or IPEDS system, to permit the collection of more detailed information on adult learning within postsecondary institutions.

Options for Developing a Lifelong Learning System

Our work over the past year suggests a number of activities that NCES should pursue to develop a comprehensive lifelong learning data collection and reporting system. For strategic planning purposes, it seemed best to propose a wide range of activities, so that each activity can be considered both on its own and within the larger framework of potential activities. We do not expect that all of these options can be implemented at the current time, or even in the near future. However, we believe that all options should eventually be pursued if NCES is to fully implement a systematic and comprehensive lifelong learning data collection and reporting system.

Proposed activities are listed below, in the following order: activities that (1) can be conducted with existing data collection sources, (2) would require an expansion or revision of existing data collection sources, (3) would create new data collection sources, and (4) could be conducted independently of the level of data collection sources. (Note that we did *not* rank activities in terms of required resources.) After delineating the full range of proposed activities, we focus on those activities that seem most appropriate for the Center to pursue first.

Step 1. Work With Existing Data Collection Sources

A wide range of data sources on lifelong learning currently exist that have not been fully exploited. One simple option is to better utilize these existing data sources.

- Consolidate all currently available information on lifelong learning into a compendium report, using an indicators framework.
- Expand and coordinate the existing publication and reporting activities that use current data collection sources.

Step 2. Expand Capabilities of Existing Data Collection Sources

As discussed in section 2, current data are in some cases incomplete or of questionable reliability. Efforts should be made to fill these gaps in existing data sources.

- Revise relevant NCES surveys, as opportunity permits, to better address lifelong learning issues. (This activity is ongoing for NHES/AE, in conjunction with the task force's work.)
- Work with other relevant federal agencies (Census Bureau, BLS) to modify their surveys to provide better data on lifelong learning issues.
- Conduct developmental work to resolve the conceptual and measurement issues identified in lifelong learning. (As discussed below, this proposal calls for a more intensive developmental activity than that currently conducted as part of survey development efforts.)

Step 3. Develop New Data Collection Sources

Even after filling gaps in existing data sources, some gaps will remain that can be filled only with new data collection efforts.

- Conduct PEQIS surveys to fill data gaps that can be addressed through this data collection method (e.g., contract training, postsecondary services and accommodations).
- Open a dialogue with DoL about a possible collaborative effort to develop and administer an employer survey, addressing issues related to employer offerings, support and incentives for learning (particularly for specific groups of workers), reliance on formal versus informal learning, and skill and learning demands.

Supporting Activities

We also propose a number of additional activities to help institutionalize lifelong learning efforts within NCES. These activities could be implemented at various stages, although most are best pursued as part of an expansion of data collection resources (steps 2 and 3 above):

- Develop a lifelong learning publications and analysis plan.

- Open a dialogue with OERI to develop a coordinated approach to data collection and research on lifelong learning issues.
- Work with DoL to determine how to cost-effectively produce and use detailed occupational data, and how to link such information to other data collection sources, including the O*NET.
- Develop new indicators of lifelong learning for inclusion in current NCES compendium publications (i.e., *Condition of Education, Digest of Education Statistics, Vocational Education in the United States*).
- Encourage institutional/management-level support for lifelong learning by holding management meetings at which program managers and division directors debate the issues raised in this report.
- Institute a regular NCES seminar series (on varying topics) to help build internal awareness and support for lifelong learning (and other) issues, and to provide an opportunity for collegial interactions and information sharing.
- Sponsor professional conference presentations and panels on lifelong learning issues.
- Implement a policy to make all data collection instruments easily accessible in a user-friendly format (e.g., survey "versions" of CATI protocols), to allow analysts to more easily determine the availability of lifelong learning (as well as other) data on each instrument.

Recommended First Steps

As a first step, two fundamental problems need to be attacked: (1) the under-use of existing data on adult learning, and (2) the limitations of existing data. NCES should act to simultaneously remedy these problems by improving the data *reporting* system and the data *collection* system for lifelong learning. Specifically, the first steps should be to (1) publish a compendium report on adult learning, and (2) revise existing surveys to collect better data on adult learning. To support future data collection and reporting, we also propose the implementation of a process for intensive item development work, independent of individual survey redesign efforts.

Improve Data Reporting. As mentioned above, NCES currently collects much data relevant to adult learning. A number of reports have been published using these data. From a lifelong learning perspective, however, the independent, narrowly focused structure of these reports fails to fully realize the potential of existing NCES data. The Center currently has the capability, through a coordinated analysis and synthesis of existing data, to provide a comprehensive overview of adult learning similar to that provided in reports on other education-related topics such as the well-being of children, high school dropouts, vocational education, and student achievement. We recommend that NCES conduct a more systematic and comprehensive analysis of existing data on lifelong learning, and that the results of this analysis be published in a compendium report.

This compendium report will serve many purposes. First, it will more broadly publicize NCES data and their range of potential uses. Second, it will allow us to explore the feasibility of using surveys from DoL and the Census Bureau (e.g., NLS-Y, SIPP) as part of a lifelong learning data collection system. Third, it will indicate more clearly (than our work could) the potential and limitations of current data on lifelong learning. For example, analyses conducted for this report should reveal the comparability of findings across data sets. Fourth, response to the publication will provide feedback on (1) the level of interest in this topic in general, and (2) the specific areas of lifelong learning for which the public and policymakers would most like to have more information. This publication also could serve as the springboard for other recommended activities listed above, such as the development of a publications plan, coordination with OERI, and indicators development. Because of the amount that can be learned during the production of this compendium report, we recommend that the report be produced in-house, with analytic support from one or more contractors.

Improve Data Collection. A compendium report can also inform decisions on how to revise existing data collection instruments. But the task force feels that data revision activities should not wait for the completion of that report. We are confident that we know enough *now* to allow us to make significant improvement in existing surveys'

ability to address lifelong learning issues. Further, some of the most critical surveys for adult learning are being redesigned at present or in the near future (e.g., NHES/AE, ILSS, NAAL, NELS, NPSAS). Because the task force includes representatives from most of these survey efforts, our work has been informally coordinated with these redesign efforts during the past year. However, these efforts need to be officially sanctioned and supported, particularly if they are to continue after the task force has disbanded.

A systematic, coordinated effort to expand and refine lifelong learning data in NCES survey redesigns has the potential to provide a large payoff in data and reporting capabilities with a minimum of additional resource investment. This survey revision effort would address one of the most fundamental problems in existing lifelong learning data that was identified in the task force's work—the large number of "data gaps." Some of these gaps can be filled more easily than others, and some are more important to fill than others. Combining these two criteria, we recommend that NCES first focus on expanding or improving questions asked about the following issues: adults' labor market status, satisfaction with existing learning opportunities, intensity (or volume) of learning, intended and actual benefits of participation, specific skills sought through learning, inducements and constraints affecting participation, alternative credentialing and delivery methods, availability of employer support, informal work-related education, and noncredit coursetaking. Investigation into the feasibility of using O*NET data to track workforce skill demands should also be pursued as part of initial efforts to improve the existing data collection system. This effort would also help fill important data gaps.

Item Development. We also propose that NCES conduct developmental work to resolve conceptual and measurement issues in lifelong learning data. This type of work is routinely done as part of NCES efforts to design or redesign a data collection instrument. These efforts tend to be limited, however, as they are typically conducted within the strict time and fiscal constraints of a larger survey effort. For issues that can be resolved fairly easily, this procedure works well. But for issues that are not easily resolved or that cut across data collection efforts, this procedure can be inadequate. These more complex issues call for a more focused, intensive developmental activity undertaken independently of a survey redesign. The results of such studies would eventually be used in survey redesigns, but the studies themselves would not be constrained by a particular survey's schedule (or budget).

As an area of data collection, lifelong learning appears to have a relatively large number of difficult, unresolved conceptual issues. This occurs partly because lifelong learning is a relatively new field of inquiry, and partly because it is a diverse, multidimensional, often unsystematic enterprise. Thus, while the recommendation for more intensive developmental work could apply to any NCES data collection effort, we feel that this recommendation is particularly relevant to efforts related to lifelong learning. Issues in lifelong learning that could benefit from this type of developmental work include: determining the types of learning and skills that are important to monitor; determining which informal learning activities should be monitored and how to do so; collecting better data on providers and provider collaborations; modeling the participation decision-making process; collecting more valid learning intensity measures; determining the types of adult services and accommodations that should be monitored; and measuring adult learning costs. It should be noted that the resolution of these issues will often be of benefit to other data collection systems in addition to lifelong learning; for example, models of the decision-making process might be of use on postsecondary surveys.

Because of the value of this developmental activity both for lifelong learning and other NCES data collection efforts, we recommend that this activity also be pursued in conjunction with or immediately following the development of a compendium report and the revision of existing surveys. The completion of the latter two activities could provide further insight into which issues are most worth an intensive developmental effort.

Organizational Implementation Options

How should this work be carried out, both in the short-term, while a lifelong learning data collection and reporting system is under development, and in the long-term, when this system becomes

fully functional and institutionalized within NCES? We propose some organizational options below, based largely on existing models within the Center.

The DOVE Model

The Center's data collection and reporting system for vocational education (Data on Vocational Education, or DOVE system) serves as one model for how to organize a lifelong learning data collection system. Within NCES, lifelong learning is similar to vocational education in many ways, most notably in its reliance on data from a variety of surveys that are administered by different divisions (see figure 3.1).

The DOVE system is coordinated by one NCES staff-person, located in the Data Development Program within the Early Childhood, International, and Cross-Cutting Studies Division. This person develops the vocational education publications plan, oversees a Vocational Education Technical Review Panel (TRP), monitors contract work on vocational education reports, and attempts to improve and expand NCES data on vocational education through informal representation on the TRPs for relevant data collection efforts. This model works reasonably well except for the last task. Both the current and past DOVE coordinators, as well as other NCES staff, have noted that the informal reliance on one person to influence multiple data collections is time-consuming and not very effective.

Would this model work for lifelong learning? We think that the problems with the current DOVE system would only be exaggerated in lifelong learning, where the limits of the existing data collection system are more extensive than they are in vocational education. Lifelong learning is an emerging area in which much work needs to be done to expand and improve the Center's data collection system. This organizational model is ill-suited for an activity that requires such intensive data development work across multiple surveys. Thus, we do not recommend the DOVE model.

The Team Approach

Our Lifelong Learning Task Force provides another potential model for the organization of lifelong learning data collection and reporting activities. Future lifelong learning work could be conducted by a similar inter-program team of staff members representing the Center's relevant data collection efforts. Our experience on the task force has demonstrated the advantages and disadvantages of the team approach. The advantages are many, including a cross-fertilization of ideas, the (relative) ease of coordinating efforts on multiple surveys, and, at least in theory, more staff resources. Unfortunately, in our situation staff resources proved to be very limited, as team members took on this assignment in addition to full-time work loads, or with less time assigned to the task force than was required. Management support was also insufficient in some cases. For example, although the task force had regularly scheduled meetings, some program or division directors scheduled "impromptu" meetings during our scheduled times, making it impossible for task force members to attend meetings. If these problems can be avoided, an inter-program team could be a sensible approach to accomplishing lifelong learning activities.

Our task force is an inappropriate model in one respect. A task force is a temporary group formed to solve specific problems in a finite period of time. A *team*, on the other hand, is a long-standing group that works on specific problems or tasks as part of a continuing effort to manage a program of ongoing work. So, for example, while our task force worked for 1 year to develop recommendations on lifelong learning data collection activities, a lifelong learning team would have long-term responsibilities for ensuring that an effective data collection and reporting system was developed, implemented, and improved as necessary.

The key to the team approach is to ensure that the team has *effective leadership*, adequate *staff* and *budget* resources, and a clearly defined *mission and tasks*. For the Lifelong Learning Team, we can envision a team that has a permanent team leader, or in which the leadership changes depending on the task at hand. For example, for NHES/AE item development, a team member who works on that survey could lead those activities, while a different team member could lead efforts to develop a report on work-related learning that draws from a range of surveys. Team members should include NCES staff who have major responsibility for each survey that contains

data on lifelong learning. At the least, this would include staff from NPSAS, NHES/AE, and the adult literacy assessments. Budget and support staff should be provided as appropriate for team tasks, which should include the specific tasks of item development, analysis design, and report planning, writing, and review.

We also believe that work on lifelong learning should become institutionalized within the Center, as part of its divisional and program structure. Our next two recommendations focus on these organizational options.

Creating New Program Area(s)

The only way to fully integrate a data collection program into NCES is to make it an integral part of the Center's organizational structure. Specifically, work on lifelong learning needs to be organized within a program area. This work could be organized within an existing program, or in a new program (or programs). If this work were assigned to an existing program area, the Interagency and Household Studies Program would be the most logical choice, as the NHES/AE is likely to be NCES' central data collection instrument for lifelong learning. The problem with this approach is the obvious limitation of having staff from only one survey involved in work that requires using and modifying many surveys across the Center.

The creation of one or more *new* program areas could help alleviate the coordination problem and would further integrate lifelong learning within NCES. We propose two possible alternatives along these lines in figures 3.2 and 3.3. In these models, surveys with data relevant to adult learning would be shifted among programs; there would be no net change in the number of programs.

Under the model depicted in figure 3.2, the national and international adult literacy surveys would be combined into an "Adult Literacy Assessment" program within the Assessment Division. The newly named Lifelong Learning, International, and Cross-Cutting Studies Division would lose a program area, as "Early Childhood" and "Interagency and Household Studies" programs would be combined into the "Early Childhood and Adult Learning" Program, overseeing the ECLS and the NHES early childhood and adult education components. The lifelong learning data collection system would largely be encompassed (except for its postsecondary components) by the new "Early Childhood and Adult Learning" and "Adult Literacy Assessment" program areas.

The model depicted in figure 3.3 requires a slightly more extensive reorganization, but has the advantage of placing the program areas with the greatest relevance to lifelong learning within one division. In this model, "Early Childhood and Adult Learning" becomes a single program area, as in the previous model, but the international student assessments and adult literacy assessments are essentially switched. Thus, the K–12 international student assessments are part of the Assessment Division, and the adult literacy assessments form an "Adult Literacy" Program in what is currently called the Early Childhood, International, and Cross-Cutting Division (to be renamed the Lifelong Learning and Cross-Cutting Studies Division).

Because surveys containing lifelong learning data would cut across program areas under either of these models, we propose that even with the institutionalization of lifelong learning within an existing or new program area, the inter-program team approach discussed above be maintained; this is the only way to ensure effective coordination across relevant program areas.

The reorganizations listed in figures 3.2 and 3.3 seem quite feasible under current conditions. We strongly encourage NCES management to consider implementing changes along these lines in the near future. These reorganizations also move NCES closer to the long-term goal of an organization centered around the lifelong learning concept and an international framework. We now turn to this longer-term goal.

Creating a New Division (Reorganization)

NCES has just been through a major reorganization, and no one in the Center is anxious to go through that process again. We would not recommend that the Center undergo a reorganization anytime soon. Nonetheless, the Center's current organization scheme is not likely to be its last. Given the inevitability of change, we propose a major reorganization that would align the Center's work with the two long-term goals listed

above—a Center-wide approach to lifelong learning, broadly conceived, and the coordination of national and international data collection efforts.

In this reorganization (see figure 3.4), NCES would be divided into five divisions, four of which represent the lifelong-learning stages of early childhood education, compulsory (K–12) education, postsecondary education, and adult learning. (The fifth division encompasses cross-cutting activities.) Each division would be responsible for ensuring that the Center has a comprehensive data collection system for its population, or lifelong-learning sector. Surveys would reside in programs based on the initial lifelong-learning sector to which they apply. For the longitudinal surveys, which collect data relevant to more than one division (or lifelong-learning sector), the team approach would be used to ensure that relevant data are collected to address each lifelong-learning sector. So, for example, a new NELS data collection would be placed in the Compulsory Education Division because its data collection would begin at that level. The data collection would be initially developed by program staff within the Compulsory Education Division, but follow-up surveys would be developed by an inter-program team consisting of NELS program staff and staff from the Postsecondary Education and Adult Learning Divisions. (This inter-program team approach might also be needed for NHES, to ensure the effective use of household sampling procedures.)

The effect of this organizational structure would be that staff could be responsible not just for one data collection effort within their division but, through their representation on an inter-program team, could also have substantive (but not contractual) responsibilities for data collection efforts in other programs or divisions that relate to their lifelong learning sector. Someone in the Adult Learning Division, for example, would be in charge of the NAAL, but could also work with staff on the ILSS, NHES/AE, NELS, or NPSAS to ensure that data on lifelong learning are collected in the most efficient and effective manner across the Center.

Recommended Organizational Option

We believe that the major reorganization discussed above should be NCES' ultimate goal; this reorganization will allow the Center to collect and report data on learning throughout the life cycle, reflecting the contemporary view of education as a process of "lifelong learning" and the goal of creating "a nation of learners." But for the immediate future, we propose more limited changes that will allow staff to complete the initial activities listed above.

To start, we recommend that NCES officially designate an inter-program Lifelong Learning Team to work on the concrete tasks of creating a compendium report and modifying existing data collection instruments. Why use the team approach rather than assigning this work to one or a few individuals? We believe that this work will proceed most efficiently if it is coordinated across the Center and draws upon the combined resources of staff who are experts on specific surveys relevant to lifelong learning and/or specific issues that pertain to lifelong learning. One reason the team approach is best for this work is that lifelong learning is so broad in scope—including postsecondary education, adult basic education, work-related education, and informal and "social" activities—and involves so many data issues. As discussed above, compared to most other areas for which NCES collects data, lifelong learning includes a relatively large number of unresolved conceptual and measurement issues, draws from a relatively large number of data sources, and has a relatively large need for new data development. The depth and breadth of issues encompassed by lifelong learning suggests that a coordinated, systematic approach by a team of individuals is preferable to reliance on the efforts of independent individuals within the Center. In sum, if the goal is to develop a comprehensive, coordinated data collection system, the work to develop that system should rely on a comprehensive, coordinated approach.

At the conclusion of the team's initial work (which should have a time limit, say of about 3 years), the Center should reevaluate the status of its lifelong learning data collection. Feedback on the compendium report and other team efforts should be used to evaluate the effectiveness of the team approach and the feasibility of creating a program area in which work on lifelong learning can be coordinated and institutionalized. Assuming the team approach is found to be fundamentally sound, NCES should continue to use this approach, with whatever modifications are neces-

sary based on the evaluation. Assuming response to the data produced and disseminated by the team is positive, the formation of one or more program areas focused on lifelong learning should be considered at this time. As discussed above, the eventual goal would be a larger reorganization based on the broad conception of lifelong learning.

Figure 3.1—Current NCES Organization *(4 Divisions, 14 Programs)*

Assessment Division	Early Childhood, International, and Cross-Cutting Studies Division	Elementary/ Secondary, and Library Studies Division	Postsecondary Studies Division
NAEP Development and Operations	Annual Reports	Cooperative System and Institutional Studies	Postsecondary Cooperative System
NALS/NAAL			
NAEP Analysis and Reporting	Data Development	Sample Survey Studies	Postsecondary Institutional Studies
	PEQIS FRSS	SASS	**IPEDS**
	Early Childhood	Library Cooperative System and Institutional Studies	Postsecondary Longitudinal and Sample Survey Studies
	ECLS	CCD	**NPSAS** **BPS** **B&B** **NSOPF**
	Interagency and Household Studies	Secondary Longitudinal and Transcript Studies	
	NHES/AE/EC	**NELS**	
	International Studies		
	IALS/ILSS TIMSS PISA		

Note: Boxes represent program areas, with major data collection efforts listed below the dotted line. Data collections listed in bold are those that would contribute to a lifelong learning data collection system.

Figure 3.2—Creating New Program Areas, Model 1 *(4 Divisions, 14 Programs)*

Assessment Division	Lifelong Learning, International, and Cross-Cutting Studies Division	Elementary/ Secondary, and Library Studies Division	Postsecondary Studies Division
NAEP Development and Operations	Annual Reports	Cooperative System and Institutional Studies	Postsecondary Cooperative System
NAEP Analysis and Reporting	Data Development	Sample Survey Studies	Postsecondary Institutional Studies
	PEQIS FRSS	SASS	**IPEDS**
Adult Literacy Assessment	Early Childhood and Adult Learning	Library Cooperative System and Institutional Studies	Postsecondary Longitudinal and Sample Survey Studies
NALS/NAAL **IALS/ILSS**	ECLS **NHES/AE**/EC	CCD	**NPSAS** **BPS** **B&B** **NSOPF**
	International Studies	Secondary Longitudinal and Transcript Studies	
	TIMSS PISA	**NELS**	

Note: Boxes represent program areas, with major data collection efforts listed below the dotted line. Data collections listed in bold are those that would contribute to a lifelong learning data collection system. Shaded boxes represent new or revised program areas.

The changes proposed in this figure would affect two divisions, as follows:

- The Assessment Division would gain a program area. The new program, "Adult Literacy Assessment," would be responsible for the NAAL and (moved from the "International Studies" Program in the Early Childhood, International, and Cross-Cutting Studies Division) the IALS/ILSS.
- The newly named Lifelong Learning, International, and Cross-Cutting Studies Division would be reorganized from five programs to four, as "Early Childhood" would be combined with the "Interagency and Household Studies" Program to form an "Early Childhood and Adult Learning" Program.

Figure 3.3—Creating New Program Areas, Model 2 *(4 Divisions, 14 Programs)*

Elementary/ Secondary Assessment Division	Lifelong Learning and Cross-Cutting Studies Division	Elementary/ Secondary, and Library Studies Division	Postsecondary Studies Division
NAEP Development and Operations	Annual Reports	Cooperative System and Institutional Studies	Postsecondary Cooperative System
NAEP Analysis and Reporting	Data Development	Sample Survey Studies	Postsecondary Institutional Studies
	PEQIS FRSS	SASS	**IPEDS**
International Student Assessment	Early Childhood and Adult Learning	Library Cooperative System and Institutional Studies	Postsecondary Longitudinal and Sample Survey Studies
TIMSS PISA	ECLS **NHES/AE**/EC	CCD	**NPSAS BPS B&B NSOPF**
	Adult Literacy	Secondary Longitudinal and Transcript Studies	
	NALS/NAAL IALS/ILSS	**NELS**	

Note: Boxes represent program areas, with major data collection efforts listed below the dotted line. Data collections listed in bold are those that would contribute to a lifelong learning data collection system. Shaded boxes represent new or revised program areas.

The changes proposed in this figure would affect two divisions, as follows:

- The newly named Elementary/Secondary Assessment Division would lose responsibility for the NAAL, but would gain an "International Student Assessment" Program to operate the TIMSS, PISA, and other international student assessment projects.
- The newly named Lifelong Learning and Cross-Cutting Studies Division would be reorganized from five programs to four, as "Early Childhood" would be combined with the "Interagency and Household Studies" Program to form an "Early Childhood and Adult Learning" Program. The "International Studies" Program would be replaced by an "Adult Literacy" Program, with oversight for NAAL (moved from the Assessment Division) and ILSS.

Figure 3.4—Creating a New Division: Reorganization *(5 Divisions, 14 Programs)*

Early Childhood Education Division	Compulsory Education Division	Postsecondary Education Division	Adult Learning Division	Cross-Cutting Studies Division
Longitudinal Studies	Cooperative Systems	Cooperative System	Adult Literacy	Annual Reports
	Sample Survey Studies	Institutional Studies		
ECLS	SASS	**IPEDS**	**NAAL** **ILSS**	
Cross-Sectional Studies	Student Assessment	Longitudinal and Sample Survey Studies	Cross-Sectional Studies	FRSS and **PEQIS** Systems
NHES/EC	NAEP TIMSS PISA	**NPSAS** **BPS** **B&B** **NSOPF**	**NHES/AE**	
	Institutional Studies			
	CCD			
	Secondary Longitudinal Studies			
	NELS			

Note: Boxes represent program areas, with major data collection efforts listed below the dotted line. Data collections listed in bold are those that would contribute to a lifelong learning data collection system.

This reorganization would affect every current division except for the Postsecondary Studies Division:

- The Assessment Division would become part of the Compulsory Education Division.
- The Elementary, Secondary, and Library Studies Division would gain a "Student Assessment" Program (the original Assessment Division); the elementary/secondary and library cooperative systems would be combined into one program.
- The Early Childhood, International, and Cross-Cutting Studies Division would be divided into three divisions—"Early Childhood Education," "Adult Learning," and "Cross-Cutting Studies." TIMSS would be replaced by NAAL, as the former moves to the Compulsory Education Division and the latter to the Adult Learning Division.

ENDNOTES

[1]The six issue areas, listed in table 1.2, were developed through group discussion at task force meetings. We attempted to divide lifelong learning into areas that covered major topics of policy concern, and that were relatively independent of each other.

[2]Appendix H in Volume II provides more detailed information on the data available to address each issue; this appendix summarizes task force meetings during which data availability was discussed. The numbering system used in this section of the report matches that used in appendix H (and in appendix E, the complete list of prioritized issues).

[3]The U.S. datasets referred to are typically the most recent editions of these surveys as of summer 1999. However, references to NHES/AE refer to the 1995 version of that survey unless otherwise noted, and references to the NES refer to the 1994 version unless otherwise noted. For the ILSS, we used as our reference the July 1999 version of the "participation in education and learning" module recommended by OECD's Network B. For the NELS, we used the field-test version of the NELS fourth follow-up survey.

Listing of NCES Working Papers to Date

Working papers can be downloaded as pdf files from the NCES Electronic Catalog (http://nces.ed.gov/pubsearch/). You can also contact Sheilah Jupiter at (202) 502-7444 (sheilah_jupiter@ed.gov) if you are interested in any of the following papers.

Listing of NCES Working Papers by Program Area

No.	Title	NCES contact
Baccalaureate and Beyond (B&B)		
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
Beginning Postsecondary Students (BPS) Longitudinal Study		
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
Common Core of Data (CCD)		
95-12	Rural Education Data User's Guide	Samuel Peng
96-19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
97-15	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-03	Evaluation of the 1996–97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
2000-12	Coverage Evaluation of the 1994–95 Common Core of Data: Public Elementary/Secondary School Universe Survey	Beth Young
2000-13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber
Data Development		
2000-16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000-16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Decennial Census School District Project		
95-12	Rural Education Data User's Guide	Samuel Peng
96-04	Census Mapping Project/School District Data Book	Tai Phan
98-07	Decennial Census School District Project Planning Report	Tai Phan
Early Childhood Longitudinal Study (ECLS)		
96-08	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-18	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
97-24	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97-36	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West
1999-01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Education Finance Statistics Center (EDFIN)		
94-05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
96-19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98-04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
1999-16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.

No.	Title	NCES contact
High School and Beyond (HS&B)		
95-12	Rural Education Data User's Guide	Samuel Peng
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
HS Transcript Studies		
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
International Adult Literacy Survey (IALS)		
97-33	Adult Literacy: An International Perspective	Marilyn Binkley
Integrated Postsecondary Education Data System (IPEDS)		
97-27	Pilot Test of IPEDS Finance Survey	Peter Stowe
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000-14	IPEDS Finance Data Comparisons Under the 1997 Financial Accounting Standards for Private, Not-for-Profit Institutes: A Concept Paper	Peter Stowe
National Assessment of Adult Literacy (NAAL)		
98-17	Developing the National Assessment of Adult Literacy: Recommendations from Stakeholders	Sheida White
1999-09a	1992 National Adult Literacy Survey: An Overview	Alex Sedlacek
1999-09b	1992 National Adult Literacy Survey: Sample Design	Alex Sedlacek
1999-09c	1992 National Adult Literacy Survey: Weighting and Population Estimates	Alex Sedlacek
1999-09d	1992 National Adult Literacy Survey: Development of the Survey Instruments	Alex Sedlacek
1999-09e	1992 National Adult Literacy Survey: Scaling and Proficiency Estimates	Alex Sedlacek
1999-09f	1992 National Adult Literacy Survey: Interpreting the Adult Literacy Scales and Literacy Levels	Alex Sedlacek
1999-09g	1992 National Adult Literacy Survey: Literacy Levels and the Response Probability Convention	Alex Sedlacek
2000-05	Secondary Statistical Modeling With the National Assessment of Adult Literacy: Implications for the Design of the Background Questionnaire	Sheida White
2000-06	Using Telephone and Mail Surveys as a Supplement or Alternative to Door-to-Door Surveys in the Assessment of Adult Literacy	Sheida White
2000-07	"How Much Literacy is Enough?" Issues in Defining and Reporting Performance Standards for the National Assessment of Adult Literacy	Sheida White
2000-08	Evaluation of the 1992 NALS Background Survey Questionnaire: An Analysis of Uses with Recommendations for Revisions	Sheida White
2000-09	Demographic Changes and Literacy Development in a Decade	Sheida White
National Assessment of Educational Progress (NAEP)		
95-12	Rural Education Data User's Guide	Samuel Peng
97-29	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Steven Gorman
97-30	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Steven Gorman
97-31	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Steven Gorman
97-32	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questionnaires)	Steven Gorman
97-37	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Steven Gorman
97-44	Development of a SASS 1993–94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
National Education Longitudinal Study of 1988 (NELS:88)		
95-04	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings

No.	Title	NCES contact
95-05	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings
95-06	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95-07	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-12	Rural Education Data User's Guide	Samuel Peng
95-14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
96-03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
98-06	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
National Household Education Survey (NHES)		
95-12	Rural Education Data User's Guide	Samuel Peng
96-13	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman
96-20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96-22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96-29	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-02	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-03	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97-04	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-05	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-06	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-08	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler
97-19	National Household Education Survey of 1995: Adult Education Course Coding Manual	Peter Stowe
97-20	National Household Education Survey of 1995: Adult Education Course Code Merge Files User's Guide	Peter Stowe
97-25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
97-28	Comparison of Estimates in the 1996 National Household Education Survey	Kathryn Chandler
97-34	Comparison of Estimates from the 1993 National Household Education Survey	Kathryn Chandler
97-35	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
97-38	Reinterview Results for the Parent and Youth Components of the 1996 National Household Education Survey	Kathryn Chandler

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97-39	Undercoverage Bias in Estimates of Characteristics of Households and Adults in the 1996 National Household Education Survey	Kathryn Chandler
97-40	Unit and Item Response Rates, Weighting, and Imputation Procedures in the 1996 National Household Education Survey	Kathryn Chandler
98-03	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98-10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
National Longitudinal Study of the High School Class of 1972 (NLS-72)		
95-12	Rural Education Data User's Guide	Samuel Peng
National Postsecondary Student Aid Study (NPSAS)		
96-17	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
National Study of Postsecondary Faculty (NSOPF)		
97-26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
Postsecondary Education Descriptive Analysis Reports (PEDAR)		
2000-11	Financial Aid Profile of Graduate Students in Science and Engineering	Aurora D'Amico
Private School Universe Survey (PSS)		
95-16	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17	Estimates of Expenditures for Private K–12 Schools	Stephen Broughman
96-16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-26	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27	Intersurvey Consistency in NCES Private School Surveys for 1993–94	Steven Kaufman
97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
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2000-15	Feasibility Report: School-Level Finance Pretest, Private School Questionnaire	Stephen Broughman
Recent College Graduates (RCG)		
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
Schools and Staffing Survey (SASS)		
94-01	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-06	Six Papers on Teachers from the 1990–91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
95-01	Schools and Staffing Survey: 1994 Papers Presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02	QED Estimates of the 1990–91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03	Schools and Staffing Survey: 1990–91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk
95-08	CCD Adjustment to the 1990–91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95-10	The Results of the 1991–92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk

No.	Title	NCES contact
95-11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95-12	Rural Education Data User's Guide	Samuel Peng
95-14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95-16	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-18	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk
96-02	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-05	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06	The Schools and Staffing Survey (SASS) for 1998–99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-09	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998–99 SASS	Dan Kasprzyk
96-10	1998–99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-15	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96-23	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24	National Assessments of Teacher Quality	Dan Kasprzyk
96-25	Measures of Inservice Professional Development: Suggested Items for the 1998–1999 Schools and Staffing Survey	Dan Kasprzyk
96-28	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
97-01	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97-10	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993–94 School Year	Dan Kasprzyk
97-11	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-12	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97-14	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97-18	Improving the Mail Return Rates of SASS Surveys: A Review of the Literature	Steven Kaufman
97-22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
97-23	Further Cognitive Research on the Schools and Staffing Survey (SASS) Teacher Listing Form	Dan Kasprzyk
97-41	Selected Papers on the Schools and Staffing Survey: Papers Presented at the 1997 Meeting of the American Statistical Association	Steve Kaufman
97-42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
97-44	Development of a SASS 1993–94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
98-02	Response Variance in the 1993–94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
98-04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
98-05	SASS Documentation: 1993–94 SASS Student Sampling Problems; Solutions for Determining the Numerators for the SASS Private School (3B) Second-Stage Factors	Steven Kaufman
98-08	The Redesign of the Schools and Staffing Survey for 1999–2000: A Position Paper	Dan Kasprzyk
98-12	A Bootstrap Variance Estimator for Systematic PPS Sampling	Steven Kaufman

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98-13	Response Variance in the 1994–95 Teacher Follow-up Survey	Steven Kaufman
98-14	Variance Estimation of Imputed Survey Data	Steven Kaufman
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
98-16	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey	Stephen Broughman
1999-02	Tracking Secondary Use of the Schools and Staffing Survey Data: Preliminary Results	Dan Kasprzyk
1999-04	Measuring Teacher Qualifications	Dan Kasprzyk
1999-07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999-08	Measuring Classroom Instructional Processes: Using Survey and Case Study Fieldtest Results to Improve Item Construction	Dan Kasprzyk
1999-10	What Users Say About Schools and Staffing Survey Publications	Dan Kasprzyk
1999-12	1993–94 Schools and Staffing Survey: Data File User's Manual, Volume III: Public-Use Codebook	Kerry Gruber
1999-13	1993–94 Schools and Staffing Survey: Data File User's Manual, Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebook	Kerry Gruber
1999-14	1994–95 Teacher Followup Survey: Data File User's Manual, Restricted-Use Codebook	Kerry Gruber
1999-17	Secondary Use of the Schools and Staffing Survey Data	Susan Wiley
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
2000-10	A Research Agenda for the 1999–2000 Schools and Staffing Survey	Dan Kasprzyk
2000-13	Non-professional Staff in the Schools and Staffing Survey (SASS) and Common Core of Data (CCD)	Kerry Gruber

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96-20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
98-03	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98-10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
1999-11	Data Sources on Lifelong Learning Available from the National Center for Education Statistics	Lisa Hudson
2000-16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000-16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Adult literacy—see Literacy of adults		
American Indian – education		
1999-13	1993–94 Schools and Staffing Survey: Data File User's Manual, Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebook	Kerry Gruber
Assessment/achievement		
95-12	Rural Education Data User's Guide	Samuel Peng
95-13	Assessing Students with Disabilities and Limited English Proficiency	James Houser
97-29	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Larry Ogle
97-30	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Larry Ogle
97-31	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Larry Ogle
97-32	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questions)	Larry Ogle
97-37	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Larry Ogle
97-44	Development of a SASS 1993–94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
Beginning students in postsecondary education		
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
Civic participation		
97-25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
Climate of schools		
95-14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
Cost of education indices		
94-05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.

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Course-taking		
95-12	Rural Education Data User's Guide	Samuel Peng
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
Crime		
97-09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
Curriculum		
95-11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
Customer service		
1999-10	What Users Say About Schools and Staffing Survey Publications	Dan Kasprzyk
2000-02	Coordinating NCES Surveys: Options, Issues, Challenges, and Next Steps	Valena Plisko
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Data quality		
97-13	Improving Data Quality in NCES: Database-to-Report Process	Susan Ahmed
Data warehouse		
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Design effects		
2000-03	Strengths and Limitations of Using SUDAAN, Stata, and WesVarPC for Computing Variances from NCES Data Sets	Ralph Lee
Dropout rates, high school		
95-07	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
Early childhood education		
96-20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
97-24	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97-36	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West
1999-01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
Educational attainment		
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
Educational research		
2000-02	Coordinating NCES Surveys: Options, Issues, Challenges, and Next Steps	Valena Plisko
Employment		
96-03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings

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98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96–98) Field Test Report	Aurora D'Amico
2000-16a	Lifelong Learning NCES Task Force: Final Report Volume I	Lisa Hudson
2000-16b	Lifelong Learning NCES Task Force: Final Report Volume II	Lisa Hudson
Engineering		
2000-11	Financial Aid Profile of Graduate Students in Science and Engineering	Aurora D'Amico
Faculty – higher education		
97-26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
Finance – elementary and secondary schools		
94-05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
96-19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
98-01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
1999-07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999-16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
Finance – postsecondary		
97-27	Pilot Test of IPEDS Finance Survey	Peter Stowe
2000-14	IPEDS Finance Data Comparisons Under the 1997 Financial Accounting Standards for Private, Not-for-Profit Institutes: A Concept Paper	Peter Stowe
Finance – private schools		
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96-16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
1999-07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
2000-15	Feasibility Report: School-Level Finance Pretest, Private School Questionnaire	Stephen Broughman
Geography		
98-04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
Graduate students		
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Inflation		
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
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95-11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
1999-08	Measuring Classroom Instructional Processes: Using Survey and Case Study Field Test Results to Improve Item Construction	Dan Kasprzyk
International comparisons		
97-11	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-16	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns

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97-17	International Education Expenditure Comparability Study: Final Report, Volume II, Quantitative Analysis of Expenditure Comparability	Shelley Burns
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Postsecondary education – persistence and attainment		
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1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
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2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
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1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
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